DOCUMENT RESUME

ED 331 898 UD 027 493

TITLE Educational Assessment and Accountability: Implementation Plan (1990-1994).
INSTITUTION Hawaii State Dept. of Education, Honolulu. Office of the Superintendent.
PUB DATE Oct 89
NOTE 84p.
PUB TYPE Reports - Descriptive (141) -- Legal/Legislative/Regulatory Materials (090)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Accountability; *Educational Assessment; *Educational Planning; *Educational Policy; Evaluation Criteria; Evaluation Utilization; Input Output Analysis; National Programs; *Needs Assessment; Program Design; *Program Implementation; State Programs
IDENTIFIERS *Hawaii

ABSTRACT

This report presents a plan for an Educational Assessment and Accountability System for Hawaii. The purpose of this plan is to provide an analytical as well as a descriptive account of the condition of public education in Hawaii. It is meant to be a vehicle to provide the means by which educational outcomes can be examined in light of contextual factors, resource utilization, and educational practices and policies. Chapter 1, "Introduction," covers the following topics: (1) background information; (2) assessment needs; (3) national efforts in educational assessment; (4) education assessment and accountability system specifically for Hawaii; (5) related assessment and accountability activities; and (6) the purpose of this plan. Chapter 2, "Design," covers the following topics: (1) performance assessment; (2) context-input-output framework; (3) data sources; (4) focus on schools; (5) key questions and their policy relevance; (6) analysis of data; (7) accountability uses; and (8) flexible implementation. Chapter 3, "Implementation Plan," contains the following sections: (1) "Goals and Objectives"; (2) "Guiding Principles"; (3) "Critical Elements"; (4) "Organization and Administration"; (5) "Implementation Timeline"; (6) "Costs"; and (7) "Evaluation." Three tables, five figures, and a list of 18 references are included. Examples of current educational assessment related activities and a school status and improvement report are appended. (JS)

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EDUCATIONAL ASSESSMENT AND ACCOUNTABILITY:

IMPLEMENTATION PLAN (1990-1994)

Submitted to the
1990 Hawaii State Legislature

October 1989

Hawaii State Department of Education
Office of the Superintendent
Planning and Evaluation Branch
Evaluation Section

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Executive Summary

Introduction

The present Implementation Plan for Educational Assessment and Accountability has been prepared for submission to the 1990 Sixteenth Legislature. The plan has been prepared as a response to S.B. No. 1856 of the Fifteenth State Legislature, 1989, and to the Legislative Auditor's final report on the Evaluation of the Administrative Flexibility Legislation Affecting the Department of Education and University of Hawaii (1989). The Implementation Plan timeframe spans the years 1990-1994.

Background

The importance of a healthy, high quality educational system grows more critical by the day. The economic and social consequences of educational stagnation can be enormous for an individual as well as a nation. In Hawaii, as in many states, there is a growing concern over the quality of the schooling process and public education in particular.

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The past decade has witnessed a host of signals that may be serving as harbingers of serious economic and geo-political setbacks for our nation. The publication of A Nation At Risk early in this decade (National Commission on Excellence in Education, 1983) and its capstone remark referring to the ". . . rising tide of mediocrity [in American education]" preceded a voluminous list of commission and task force reports and research studies that share a common theme: the condition of American education grows more deplorable with each passing year. International comparisons of student performance on math and science tests reveal consistent results that place the U.S. a distant "also ran" behind Japan, Germany, England, and most other developed, democratic countries.

Other signals of educational decay include a long-term decline in the Scholastic Aptitude Test (a measure designed to predict college performance), employer dissatisfaction with applicant basic skills, college faculty feedback on freshman computing, reading, writing and analytical skill deficiencies, and a shortage of math, science and technology graduates.

In Hawaii, similar concerns have been expressed. Additional concerns somewhat unique to our island community include the overall poor student performance in the area of verbal skills on nationally normed standardized tests, and the loss of some of the islands' most brightest and promising youth via the "brain drain."

Clearly, there is a need for an attentive and involved citizenry to foster educational reform. There does appear to be widespread consensus to take action to improve the quality of public education and the performance of our public schools. Less clear is the choice of specific actions to take, and how we will assess the effects of such actions.

Increasingly, educators and policymakers are turning to educational assessment and accountability systems as a decisionmaking tool and as a vehicle for public accountability. The renewed national and state-level interest in education assessment/accountability systems reflect the shared concern that new policies and follow-up actions be based on reliable information. For policymakers and the general public, better information is seen as a key to improving schools' performance and holding them accountable. For educators, better information is viewed as a key to more effective planning and more efficient operations.

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Need Statement

A continual review of educational quality is necessary to make systematic improvements. The Educational Assessment and Accountability System for Hawaii public education is not a panacea, but can be highly useful to policymakers with responsibility for public education. Unfortunately, policymakers often lack the kinds of information critical to the decisionmaking process. Available data typically does not allow policymakers to identify the sources of problems with enough precision to formulate effective policy (Shavelson et al., p. v, 1987).

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Educators, too, share a similar paucity of useful information necessary for decisionmaking on an operational level. Here, too, an educational assessment and accountability system, properly designed, and given sufficient resources, can play a pivotal role in monitoring and facilitating improvement efforts in education.

System Overview

The basic components of an Educational Assessment and Accountability System consist of a set of educational indicators linked to an analytical model. Multiple indicators are required to provide a representative assessment of the schooling process and educational outcomes.

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A wide range of formal assessment and accountability mechanisms already exist within the Department. Some examples are monitoring for compliance with civil rights and equal opportunity laws; management audits; financial audits; special analytic studies and other Program Planning Budgeting (PPB) system requirements; personnel evaluations; program monitoring and program audits; program evaluations; curriculum reviews; school accreditation; and student testing.

Clearly, each of these mechanisms serves an important role in holding educators and the Department accountable. Each mechanism, however, is aimed at a specific purpose and often uses different information.

The current assessment and accountability plan is based on the straightforward idea of combining and building on selected data elements from existing assessment and accountability mechanisms in order to broadly but comprehensively examine schools' performance outcomes. Important to note is that the intent of the current plan is not to integrate the various assessment and accountability activities already in place, but rather to integrate selected information.

Purpose Statement

The Educational Assessment and Accountability System proposed herein is intended to provide an analytical as well as a descriptive account of the condition of public education in Hawaii. It is, by design, a vehicle to provide the means by which educational outcomes can be examined in light of contextual factors, resource utilization, and educational practices and policies.

The Educational Assessment and Accountability System . . . is intended to provide an analytical as well as a descriptive account of the condition of public education in Hawaii.

The major purposes of the Educational Assessment and Accountability System for Hawaii's public schools are:

- *to provide information about schools' performance for public accountability;*

- *to inform educational policy development; and,*
- *to improve educational quality by influencing local practice and improvement efforts.*

The primary information users or audiences for the information are the general public, educational policymakers, and educators.

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We view the Educational Assessment and Accountability System as adaptive to users' information needs and evolving over time. Early experience with the system, including comments and criticism of the present plan, will help guide its future development.

Design

Creating an educational assessment and accountability system requires difficult choices on issues involving complex trade-offs. There does not exist an established model system that can be simply adopted (Oakes, 1986, p. 8). The design problems encountered are as much ecological (that is, organizational, structural, and political) as technical. The State Accountability Study Group's report, Creating Responsible and Responsive Accountability Systems (U.S. Department of Education, Office of Educational Research and Improvement; September 1988) emphasizes that "Each State must design an accountability strategy that supports its own educational goals and needs and is consistent with its own political traditions" (p. vii).

Performance Assessment: Focus on School Outcomes

Educational assessment systems are the foundation for educational accountability systems. Richards (1988) has studied educational assessment systems in many states and school districts throughout the nation. He describes "three prototypical models that differ according to their purpose: monitoring for regulatory compliance, monitoring for instructional diagnosis/remediation, and monitoring for school performance outputs" (p. 107). Of these three types, monitoring for school performance outputs appears most appropriate as the foundation for Hawaii's educational accountability system. In the education accountability literature, this type of assessment or monitoring system is commonly referred to as performance assessment. The functional objective of the

. . . monitoring for school performance outputs appears most appropriate as the foundation for Hawaii's educational assessment and accountability system.

performance assessment approach is to promote school performance (e.g., student achievement) by focusing oversight on school outcomes.

Indicators: Context-Input-Output Framework

The basic building blocks of a performance-based educational assessment and accountability system are indicators. Indicators are statistics that serve as gauges to inform policymakers, educators, and the public about the condition of the educational system and how it is changing. The OERI State Accountability Study Group's report (1988) notes, however, that "Accountability is a blunt tool unless policymakers, educators, and the public have information that allows them to determine the likely sources of a problem and find clues about how to fix it" (p. 7). Thus, what is needed is not just information about distinct elements of the educational system but also information about how the relevant elements work together to affect educational outcomes. In essence, model building is needed to identify the central features of the educational system. The basic analytical model for educational assessment and accountability we have adopted encompasses three general components: CONTEXT, INPUT, and OUTPUT.

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OUTPUT indicators such as graduation rates, grade point average, or performance on achievement tests gauge the health of public education. These outcome measures are the crux of the assessment and accountability system. Outcome measures, however, are necessarily viewed in **CONTEXT** with the community setting, family demographics, and the students' readiness for school. In addition to context variables, **INPUT** indicators reflective of policy guidelines and the schooling process itself are examined. Some examples of input indicators include course offerings, course requirements, staff allocation, teaching methods, and finances.

It is critical that the educational assessment and accountability system include multiple output or outcome measures that range from achievement test scores and attendance rates to disciplinary incidents and graduates' performance in the first year of college. Multiple output indicators are needed in order to represent adequately the overall results of the educational system.

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For policymakers, an understanding of relationships between inputs and a school's outcomes, as conditioned by the

school-community context, will be most useful. The intent of using the context-input-output indicators framework is for its potential explanatory and diagnostic value, that is, as a guide to how the various elements of the educational system might work together to affect outcomes.

Data Sources

Several existing data sources, together with new sources currently under development, should provide a basis of sufficient scope and depth for an initial set of indicators. Of these, the School Profiles is the most comprehensive and the single best data source for indicators development. Generated by the Department's Information System Services Branch, the School Profiles contain multi-year statistical information, updated annually, for each school. Drawing upon data extracted from other major data sources, School Profile data are available in the areas of student achievement, student demographics, student behavior, teacher demographics, and school-community characteristics.

Several existing data sources, together with new sources currently under development, should provide a basis of sufficient scope and depth for an initial set of indicators.

Other existing data sources or assessment-related activities that will be immediately useful for outcome indicators include the Hawaii State Test of Essential Competencies, the College Board's Scholastic Aptitude Test, and the Graduate Follow-Up Survey.

Focus on Schools and Reporting

There is ample research and experience to indicate that individual schools are the basic unit of improvement in public education. Thus, the best place to observe the interaction of state, district and school policies, as they affect students and practitioners, is at the school level. Clearly, the choice of a focal level has both technical and policy implications. The unit of analysis should be comparable to the level at which policy impact is expected; most often, this will be the school level.

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Educational assessment and accountability reports, as presently conceptualized, would be produced for each school. A state summary of information selected from the school reports, together with additional information relevant to a state-level report (e.g., National Assessment of Educational Progress results, selected findings from a new Survey of Public Education in Hawaii), would also be produced. Reporting will emphasize the school as the primary unit of accountability, while providing policymakers with overall state results.

Key Questions and Policy Relevance

Three key questions underlie many recurrent policymaking issues in Hawaii's public school system.

- *What are the overall condition, performance, and progress of the public schools?*
- *What are the accomplishments and shortcomings of the educational system? Where are adjustments needed?*
- *To what extent are intended effects, including those of major education initiatives/reforms, being achieved?*

Fundamental to the present design is the assumption that the resulting information will be used with the intent of improving the quality of public education in Hawaii. We believe the three key questions cited above serve as a central guide to providing policy-relevant information.

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Analysis

The analysis component of the present design must include three analytic functions necessary to operationalize the use of indicators for the purpose of providing policy-relevant information about schools' performance: (1) describe performance to answer the question "What is happening?"; (2) relate performance to inputs and context variables to answer the question "Why might it be happening?"; and (3) compare performance to answer the question "Is it adequate?"

Descriptive, relational, and comparative analyses tend to form a sequence of increasing analytic complexity, with later types building on the results from earlier ones. We envision the initial years' assessment/accountability reports as based largely on the results of descriptive and relational analyses, but also containing findings on a few selected comparative analyses of outcomes. The comparative analyses, initially, would likely use schools' past performance and/or national norms as bases for comparison.

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Accountability Uses

The design of the present system utilizes a performance assessment approach; it serves as a tool for improving public

The design of the present system . . . is outcome-oriented and it seeks

education by attempting to better inform policymakers, educators, and the general public. Simply said, the design is outcome-oriented and it seeks improvement by focusing attention and discussion on educational outcomes.

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Unless assessment results are used in some instrumental way for school improvement, accountability has not been realized. The following are some uses we propose should be made of the assessment reports.

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Use assessment findings/reports to:

- Provide for accountability to the general public;
- Provide for accountability to policymakers and to assist the development of educational policy;
- Guide the Department's program planning and budget development; and,
- Guide School Improvement Plan development.

Flexible Implementation

There is ample evidence to indicate that ineffective implementation is a cause of the failure of many social policies and programs to achieve their intended effects. Berman (1980) noted that a mismatch between implementation approach and context of the situation in which the initiative is to be implemented can actually worsen the very implementation problems the approach is supposed to circumvent. For those implementation areas of the Educational Assessment and Accountability System that are highly dependent upon professional judgement rather than routine application of simple decisionmaking rules, adaptive rather than pre-programmed strategies will work best.

Implementation Plan Summary

This section describes the plans developed by and implementation steps taken by the Department, and joint activities conducted by the Department and the University of Hawaii that relate directly to educational assessment.

Goals

The following four goals define the functional scope of the Educational Assessment and Accountability System.

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- Establish a statewide system of educational assessment and accountability to systematically examine the health and quality of Hawaii public education.

- Institute public accountability through periodic reports on public education to the community-at-large (parents, businesses, taxpayers).

- Inform educational policymakers and educators about the condition, performance and progress of Hawaii public education.

- Work collaboratively with the University of Hawaii system to coordinate educational assessment activities between the Department and higher education.

Specific implementation objectives corresponding to these goals are given in the full report.

Guiding Principles

The following guiding principles serve to further direct the development and implementation of assessment/accountability activities:

- Information produced by the Educational Assessment and Accountability System should be relevant to the development and revision of educational policy and to the assessment questions directly related to policy issues.

- The results and report formats should be clear and easily understood by policymakers, educators and the community-at-large.

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- An independent advisory panel should be established to assist in the development and review of the Educational Assessment and Accountability System.

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- The Educational Assessment and Accountability System should be based on an analytical model that serves as a conceptual framework for identifying, developing and linking a set of educational indicators.

- Assessments of educational quality should not be based solely on single indices of performance such as standardized tests; rather, multiple indicators with analytical links among educational input, context, and output elements should be used.

- The Educational Assessment and Accountability System should be adaptable, evolving over time to meet future assessment needs necessitated by changes in the public education delivery system itself (e.g., School/Community-Based Management).

- The school should serve as the fundamental unit of analysis, consistent with its role as the primary agent of change.

- The Educational Assessment and Accountability System should utilize and integrate extant data to the fullest extent possible to reduce paperwork and data collection burden on school personnel.

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Implementation of Critical Elements

There are seven critical elements involved in the development and implementation of the Educational Assessment and Accountability System. Each element is briefly discussed below. The full report contains an implementation schedule that details the implementation timeline for each element.

(1) *Policy Issues and Assessment Questions*

The Educational Assessment and Accountability System is intended to be more than a mere collection of data. Foremost among our guiding principles is the requirement that information be relevant to policymaking and public accountability.

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Specific assessment questions subsumed under each policy issue area are essential to specifying the type and scope of data required. The following is an example of a possible

policy issue and the related assessment questions that might be addressed.

Policy Issue: *Is the scope and sequence of curriculum offerings adequate in preparing graduates for subsequent study in higher education?*

Assessment Questions:

1. *What percent of applicants who graduate from Hawaii public schools are accepted at Hawaii's 4-year colleges?*

2. *What percent of Hawaii public school graduates receive advance placement credits, or course waivers as freshmen at UH Manoa?*

3. *How many Hawaii public school graduates entering the UH system are required to enroll in remedial courses in language arts? in math?*

4. *Which indicators best predict freshmen performance in the UH system?*

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(2) *Indicator System*

Crucial to the establishment of the Educational Assessment and Accountability System is the development of an indicator system. A lengthy yet far from exhaustive list of such indicators has been drafted in a form of a taxonomy (Educational Assessment and Accountability Project Working Paper #2, A Taxonomy of Indicators for Educational Assessment and Accountability; August 1989 [Draft]).

Crucial to the establishment of the Educational Assessment and Accountability System is the development of an indicator system.

The taxonomy lists potential indicators by assessment domains. For example, context indicators are organized under two assessment domains: demographics (1.10) and early education experience/readiness (1.20). We have underscored potential to emphasize that this taxonomy was designed to embrace much more than would be feasible in an actual educational assessment and accountability system.

The taxonomy is specifically intended to serve as a resource document to guide further efforts toward implementing a useful, representative, and parsimonious set of educational indicators. A set of initial indicators is proposed in the full report; future developmental steps are outlined therein as well.

Several new data sources are currently under development or being planned. Some additionally useful educational indicators, based on these new data sources, are expected to become available within the next one to two years. Most important among the new data sources are:

- University of Hawaii's Freshman Report of High School Graduates
- National Assessment of Educational Progress (NAEP)
- School Climate/Effective Schooling Survey
- Survey of Public Education in Hawaii
- Instructional Practices Surveys (Testing Supplement)

As work progresses on the development of the initial set of indicators and new data sources, a number of measures will be scrutinized specifically for potential use as "leading indicators" (Oakes, 1986). The concept of a leading indicator (borrowed from econometrics) is an intriguing one for educational assessment and accountability. The intent of establishing a small array of leading educational indicators is to provide a very concise account of the condition and direction of public education, and to provide, if possible, an "early warning system" for educational policymakers.

. . . a number of measures will be scrutinized specifically for potential use as "leading indicators".

(3) *Data Collection Plan*

Data Definition. The initial set of indicators will require operational definitions for each data element of interest. Even seemingly "basic" indicators such as attendance rates, graduation rates and dropout rates are often inconsistently defined and reported across states, districts, and schools.

Even seemingly "basic" indicators such as attendance rates, graduation rates and dropout rates are often inconsistently defined and reported across states, districts, and schools.

Procedures. Detailed data collection procedures will be drafted during the first few years of the implementation plan. As developmental work progresses in other related areas (e.g., prioritizing policy issues and assessment questions, and operationalizing data element definitions), data collection instruments and procedures will be refined.

Implementation. The first step in data collection will be the development and definition of an initial set of context, input and output measures. The second step will involve the development and refinement of data collection forms and instruments to obtain information not available from existing sources. Data collected will be collated, tabulated and stored in computer database files created for the Educational Assessment and Accountability System.

These activities require a third step in the data collection scheme: the establishment of a database storage and retrieval system. The fourth step, and an especially important aspect within the data collection design, is a quality assurance component to provide validity checks and data quality controls.

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Measures contained in the School Status and Improvement Report can serve as an interim set of educational indicators. Future data collection from the school level is not anticipated to be much different from that utilized for the current School Status and Improvement Report.

(4) *Standards*

The area of standards setting is indeed difficult. But the need to establish educational standards such as minimally acceptable performance expectations (i.e., minimal standards) based on strong rationale rather than impulse seems more critical than ever. School, district and state officials may not be so adamantly opposed or fearful of standards if results are truly useful, and are analyzed cautiously and reported fairly.

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The first year of the implementation plan will include preparations for convening a special study group on standards setting. Due to the difficult and complex nature of the task, the Department will likely conduct a nationwide search to acquire the services of professionals with expertise in this area. A number of highly reputable institutions, including the RAND Corporation and several major universities and educational agencies has expressed a willingness to help Hawaii with standards setting. Simultaneously, the Educational Assessment and Accountability Project staff will initiate work on reviewing

pertinent literature on establishing standards during this first year. The second and ensuing years will be devoted to preparation of materials necessary for use by the special study group, documentation of study group recommendations, and field-testing of educational standards for selected indicators prior to formal adoption.

(5) *Analysis*

How can the adequacy of a school's performance on a set of outcome indicators be operationally defined? A school's performance is obviously affected by the availability of basic resources such as personnel, textbooks, and classrooms. However, it is not only the amounts but also the ways in which the inputs are utilized that is important.

A school's performance can also be affected, positively or negatively, by context factors (e.g., socioeconomic status of the school's community). Most context factors are ordinarily beyond the immediate control of either the school or the school system. Nonetheless, context factors differ considerably from school to school and do affect educational outcomes. Any fair assessment of a school's performance must somehow take into account or control for variations in context between schools.

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One proposed analytic approach includes the technique of multiple linear regression (MLR). MLR is a general statistical technique through which the relationship between a criterion (dependent) variable and a set of predictor (independent) variables can be analyzed. For present purposes, the most important uses of the technique are: (1) to identify the best sets of context and input (independent) variables that contribute to the prediction of each given outcome (dependent) variable; and (2) to control for the confounding of context variables in order to evaluate the specific contributions of inputs to outcomes.

Several states currently utilize MLR approaches as part of their assessment/accountability systems. A few states (e.g., California, South Carolina) rely extensively on variants of two prototypical MLR approaches described in the full report.

Considering the experience of other states that have used MLR in their assessment/accountability systems, it seems advisable not to base Hawaii's educational assessment methodology on MLR analysis alone. Rather, the proposed methodology includes MLR analysis but as only one part of a comprehensive sequence of analysis. Following is a brief sketch of the proposed assessment methodology.

PART 1 -- Current Performance Compared to State Standards

For each outcome indicator, compare a school's current performance with the established state standard or criteria. Simple, easily understood information is provided by such comparisons. The assessment information directly answers the basic question "Is the school's performance adequate?"

PART 2 -- Current Performance Compared to Past Performance

For each outcome indicator, compare a school's current performance with its past performance. This assessment information directly addresses the question "Is the school's performance improving?"

PART 3 -- Current Performance Compared to That of Similar Schools

For each outcome indicator, use MLR analysis to compare a school's actual performance with its' "expected" performance. This assessment information addresses the question "Is the school's performance as good as can be expected, given its context and inputs?"

There is much exploratory and developmental work to be done in this area. The Context-Input-Output analytic model and the establishment of an indicators system provide the basic ingredients necessary to initiate the Educational Assessment and Accountability System. The first year of implementation activities involving the development of an initial set of educational indicators and work on standards setting are crucial prerequisites to the proposed analytical methodology. Also important are the exploratory studies needed to ascertain the utility of a special subset of "leading

The Context-Input-Output analytic model and the establishment of an indicators system provide the basic ingredients necessary to initiate the Educational Assessment and Accountability System.

indicators," and the actual performance of particular analytic techniques.

(6) *Reporting*

Reports will be produced to summarize information at both the school and state levels. The initial statewide report is scheduled to be released in early 1990. The bulk of that report will be based on information from the newly implemented School Status and Improvement Report (SSIR) [a revised version of the School Performance Report Card]. The SSIR is expected to serve as an interim school report prior to modification into a more comprehensive Educational Assessment and Accountability report format.

Reports will be produced to summarize information at both the school and state levels.

The purpose of the state-level report is to appraise the condition, performance and progress of Hawaii public education. Efforts will be made to identify overall trends and to assess the general impact of educational initiatives and reforms.

The contents of future state-level Educational Assessment and Accountability Report will include summaries of school performance by district and state. These summaries will report results from analysis that reflects the influence of contextual factors and resource utilization in addition to outcomes. The kinds of information presented will range from summaries of community demographics and school readiness assessments to achievement levels and outcomes beyond high school graduation.

Development of new, prototype school and state-level Educational Assessment and Accountability reports will begin in the second year of implementation. The report formats are expected to be slightly different for elementary and secondary schools.

It is also planned that a general report to the public be issued biennially beginning 1995. Contents of that report will include highlights of educational assessment and accountability findings and a special feature section covering topics of current interest.

Contents of [a general report to the public] will include highlights of educational assessment and accountability findings . . . .

(7) *Informed decisionmaking*

The basic tenet that underlies the educational assessment and accountability concept is that overall improvements in education can be greatly facilitated by providing key information in the right place at the right time. The ultimate utility of information made possible through the Educational Assessment and Accountability System is its potential for informed decisionmaking at school, district and state levels. Parents and the business community, too, should find the reports and other end-products useful.

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The state-level, school-level and public accountability reports comprise the major deliverables produced by the Educational Assessment and Accountability Project. There are, however, a number of other possibilities that may benefit decisionmakers and policymakers. Two such possibilities are mentioned here.

The state-level, school-level and public accountability reports comprise the major deliverables produced by the Educational Assessment and Accountability Project.

First, the Educational Assessment and Accountability database and its affiliated data sources will have the potential to provide supplemental information. Special requests for technical assistance or database retrieval of particular pieces of information may be a possibility once the basic Educational Assessment and Accountability System is in place and data quality is improved.

Second, a number of current or special issue areas will inevitably require further in-depth study than is possible with educational assessment and accountability information. It may be possible, indeed desirable, to conduct special studies on current educational topics of interest. For example, there is considerable interest in obtaining a comprehensive and accurate assessment of public school graduates' employment patterns. The Department of Education, Department of Labor and Industrial Relations, University of Hawaii and the business community, in particular, would all benefit if employment data on recent graduates were made available in a timely manner.

Organization and Administration

No major reorganization will be required within the Department of Education to implement educational assessment and accountability activities. The Educational Assessment and

Accountability Project staff will be incorporated within the existing Evaluation Section, under the Planning and Evaluation Branch, Office of the Superintendent.

The administration of the Educational Assessment and Accountability Project will be under the general direction of the Evaluation Section's Administrator. The current line of authority within the Office of the Superintendent will remain intact.

Moreover, an Advisory Panel on Educational Assessment and Accountability will be established in the first year of implementation. This independent panel will consist of policymakers, educators, parents and the community-at-large. The primary role of the Panel will be to periodically review and provide feedback to guide the implementation and long-term direction of the Educational Assessment and Accountability Project.

During the timeframe spanned by the Implementation Plan, 1990-1994, the average annual cost of implementing the Educational Assessment and Accountability System is estimated at $151,864.00. Budget details may be found in the complete report that follows.

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I. Introduction

The present Implementation Plan for Educational Assessment and Accountability has been prepared for submission to the 1990 Sixteenth Legislature. The present document has been prepared as a response to S.B. No. 1856 of the Fifteenth State Legislature, 1989, and to the Legislative Auditor's final report on the Evaluation of the Administrative Flexibility Legislation Affecting the Department of Education and University of Hawaii (1989). The Implementation Plan timeframe spans the years 1990-1994, and includes first, information on the impetus, necessity for and purposes of an Educational Assessment and Accountability System for Hawaii public education. Second, the design of the Educational Assessment and Accountability System is explained in some detail to describe the conceptual framework, model, and data analytic approaches required to compile, analyze, and synthesize information on educational outcomes, contextual factors, and policies and practices. Finally, seven critical elements of the Educational Assessment and Accountability System are outlined and briefly discussed in conjunction with implementation goals, objectives, system organization and administration, timeline, and costs.

A. Background

The importance of a healthy, high quality educational system grows more critical by the day. The economic and social consequences of educational stagnation and neglect can be enormous for an individual as well as a nation. In Hawaii, as in many states, there is a growing concern over the quality of the schooling process and public education in particular.

The past decade has witnessed a host of signals that may be serving as harbingers of serious economic and geo-political setbacks for our nation. The publication of A Nation At Risk early in this decade (National Commission on Excellence in Education, 1983) and its capstone remark referring to the ". . . rising tide of mediocrity [in American education]" preceded a voluminous list of commission and task force reports and research studies that share a common theme: the condition of American education grows more deplorable with each passing year. International comparisons of student performance on math and science tests reveal consistent results that place the U.S. a distant "also ran" behind Japan, Germany, England, and most other developed, democratic countries.

Other signals of educational decay include a long-term decline in the Scholastic Aptitude Test (a measure designed to predict college performance), employer dissatisfaction with applicant basic skills, college faculty feedback on freshman computing, reading, writing and analytical skill deficiencies, and a shortage of math, science and technology graduates.

In Hawaii, similar concerns have been expressed. Additional concerns somewhat unique to our island community include the overall poor student

performance in the area of verbal skills on nationally normed standardized tests, and the loss of some of the islands' most brightest and promising youth via the "brain drain."

There are early signs of a concerted effort to make Hawaii public education a priority at the policymaking level. The State Legislature, Governor's office, State Board of Education, and local business community have all taken an increasingly proactive role in reviewing and implementing educational policy and practice. Of special interest is the Governor's call, in his 1989 State of the State address, ". . . to enter the 21st century with a public education system that is second to none." There are some overarching similarities between the Governor's emphatic plea and the National Science Board's (Commission on Precollege Education in Mathematics, Science, and Technology) primary goals set in 1983: ". . . to provide all the nation's youth with a level of education in mathematics, science, and technology that is of the highest quality attained anywhere in the world . . . by 1995." (Shavelson et al., 1987).

Clearly, there is a need for an attentive and involved citizenry to foster educational reform. There does appear to be widespread consensus to take action to improve the quality of public education and the performance of our public schools. Less clear is the choice of specific actions to take, and how we will assess the effects of such actions.

At present, there are a number of reform movements that directly impact Hawaii public education. Significant among these are the Hawaii Business Roundtable Study that culminated with the Berman-Weiler Report in Spring 1989, the School/Community-Based Management process scheduled for implementation in up to 30 schools in School Year (SY) 1989-90, substantial teacher pay raises, generous capital improvement funds to upgrade school facilities, statewide expansion of parent-community networking centers, and attempts to more widely institute pre-school education, schools of choice, juvenile delinquency prevention programs, and after-school care programs.

These and a host of other efforts to improve educational quality are varied and can be of differential value. How do we determine which efforts are worth pursuing? Which efforts should be discontinued? How do we know if our schools are making significant progress? And how can we avoid haphazard conglomerations of programs of dubious merit?

These difficult questions are being posed in virtually every state. Increasingly, educators and policymakers are turning to educational assessment and accountability systems as a decisionmaking tool and as a vehicle for public accountability. The renewed national and state-level interest in education assessment/accountability systems reflect the shared concern that new policies and follow-up actions be based on reliable

information. For policymakers and the general public, better information is seen as a key to improving schools' performance and holding them accountable. For educators, better information is viewed as a key to more effective planning and more efficient operations.

B. Need Statement

A continual review of educational quality is necessary to make systematic improvements. The Educational Assessment and Accountability System for Hawaii public education is not a panacea, but can be highly useful to policymakers with responsibility for public education. Unfortunately, policymakers often lack the kinds of information critical to the decisionmaking process. Available data typically does not allow policymakers to identify the sources of problems with enough precision to formulate effective policy (Shavelson et al., p. v, 1987).

Educators, too, share a similar paucity of useful information necessary for decisionmaking on an operational level. Here, too, an educational assessment and accountability system, properly designed, and given sufficient resources, can play a pivotal role in monitoring and facilitating improvement efforts in education.

C. National Efforts in Educational Assessment

At the encouragement of the Legislative Auditor (1989), the Department of Education conducted a review of educational assessment programs in other states (Educational Assessment and Accountability Project Working Paper #1, Review of Educational Accountability Systems in Other States; May 1989 [Draft]). Our findings reaffirm the Auditor's suspicion that educational assessment "systems" are widely disparate and can take many forms. Some states simply reorganized or expanded statewide testing program activities and called the "new" program an educational assessment system. A number of states utilized a compliance approach to ascertain whether school districts are complying with state regulations. Several states have adopted a performance assessment type of educational assessment. At least one state utilized a diagnostic model of educational assessment where information is aggregated at the student rather than the school level. While none of these educational assessment systems are substantively similar, all share a common mission: To assess the condition of public education.

Having examined existing state educational assessment systems elsewhere, and having reviewed the strengths, weaknesses and implementation requirements associated with each major type, we next attempted to design an educational assessment approach appropriate to assessing the condition of public education in Hawaii.

D. An Educational Assessment and Accountability System For Hawaii

The basic components of an Educational Assessment and Accountability System consist of a set of educational indicators linked to an analytical model of education. Multiple indicators are required to provide a representative assessment of the schooling process and educational outcomes. Admittedly, "accountability is still a largely untested concept in the field of education" (Anderson, Ball, Murphy, and Associates, 1975), even though various accountability mechanisms have been borrowed from the legal and financial fields for several decades. Educational assessment, too, in concept, if not name, has been in existence for some time. A case in point is Hawaii's Project ASSESS, a promising project that in 1973 attempted to address many of the same concerns relevant today with relatively sophisticated analytical techniques (Hawaii State Department of Education, 1973). Especially noteworthy were attempts to provide school level analysis and practical recommendations for improvement in a report layout similar to the California school performance monitoring system which has received much attention recently.

The renewed emphasis on educational accountability and assessment mechanisms seems directly related to concerns about educational quality and school reform effectiveness. Most noteworthy is the current focus on policy-relevant information. Fundamental to the present system is the ability to analyze how contextual variables, together with educational policies and practices, influence student outcomes.

E. Related Assessment and Accountability Activities

A wide range of formal assessment and accountability mechanisms already exist within the Department. Some examples are monitoring for compliance with civil rights and equal opportunity laws; management audits; financial audits; special analytic studies and other Program Planning Budgeting (PPB) system requirements; personnel evaluations; program monitoring and program audits; program evaluations; curriculum reviews; school accreditation; and student testing. Appendix A contains a list of educational assessment related activities currently supported or incorporated into public education programs. Clearly, each of these mechanisms serves an important role in holding educators and the Department accountable. Each mechanism, however, is aimed at a specific purpose and often uses different information.

The current assessment and accountability plan is based on the straightforward idea of combining and building on selected data elements from existing assessment and accountability mechanisms in order to broadly but comprehensively examine schools' performance outcomes. Also, the present plan is more closely related to some of the existing accountability mechanisms (e.g., student testing, program evaluation, curriculum reviews)

than to others (e.g., compliance monitoring, fiscal or management audits). Important to note is that the intent of the current plan is not to integrate the various assessment and accountability activities already in place, but rather to integrate selected information.

Links between the Educational Assessment and Accountability System and extant accountability mechanisms will take time to develop and grow. It is anticipated that two important consequences are likely to emerge over time. First, findings from the new system may trigger special follow-up studies from the other accountability mechanisms. For example, program evaluations or curriculum reviews might be needed in order to obtain more detailed information about a particular area. Second, problems with the quality of some data elements are likely to improve over time as multiple users share the same data, become more knowledgeable about data limitations and problems, and begin to demand better quality information.

In addition, it is expected that the school-level assessment and accountability reports will have many uses. Reviewed across several years, the school reports could be used to assess the annual and cumulative results of each school's improvement efforts. Similarly, some (but not all) of the benefits expected of schools adopting the School/Community-Based Management approach could be monitored via the school-level assessment and accountability reports. The school reports might also be made available to visiting teams conducting school accreditations. A set of the school's recent reports would be a useful and credible supplement to the mostly qualitative information contained in the school's own Self-Study report. Other worthwhile uses of the reports may be suggested or become evident over time.

F. Purpose Statement

The Educational Assessment and Accountability System proposed herein is intended to provide an analytical as well as a descriptive account of the condition of public education in Hawaii. It is, by design, a vehicle to provide the means by which educational outcomes can be examined in light of contextual factors, resource utilization, and educational practices and policies.

The major purposes of the Educational Assessment and Accountability System for Hawaii's public schools are:

- to provide information about schools' performance for public accountability;

- to inform educational policy development; and,

- to improve educational quality by influencing local practice and improvement efforts.

The primary information users or audiences for the information are the general public, educational policymakers, and educators. Included within the policymaking group are the Governor and his staff, members of the Hawaii State Legislature, and members of the Board of Education.

There are several different ways an educational assessment and accountability system can be designed. Also, many variations are possible on planning the steps to implementing any given design. The present report describes the proposed design and implementation plan. We have attempted to also describe the main design and implementation alternatives available, justify the choice of particular options, and note any important limitations of the proposed design.

We view the Educational Assessment and Accountability System as adaptive to users' information needs and evolving over time. Early experience with the system, including comments and criticism of the present plan, will help guide its future development. We also acknowledge that legitimate differences in philosophy and views of what constitutes a "best" approach to educational assessment and accountability exist. Thus, the present plan should be viewed as a kind of "starting point" from which a future path to educational assessment and accountability will develop.

II. Design

Creating an educational assessment and accountability system requires difficult choices on issues involving complex trade-offs. There does not exist an established model system that can be simply adopted (Oakes, 1986, p. 8). The design problems encountered are as much ecological (that is, organizational, structural, and political) as technical. The State Accountability Study Group's report, Creating Responsible and Responsive Accountability Systems (U.S. Department of Education, Office of Educational Research and Improvement; September 1988) emphasizes that "Each State must design an accountability strategy that supports its own educational goals and needs and is consistent with its own political traditions" (p. vii).

In order to acquire a more in-depth understanding of the designs and operations of accountability systems in other states, we conducted our own review of the sample of state reports used by the OERI State Accountability Study Group. (Findings of that review are summarized in Educational Assessment & Accountability Project Working Paper #1, Review of Educational Accountability Systems in Other States; May 1989 [Draft]). We found that accountability systems in other states vary greatly in terms of intended purpose and focus, kinds and scope of major activities, locus of responsibility for implementing activities, extent of public reporting required, and follow-up uses. For example, states' purposes for educational accountability systems ranged from ensuring individual student's basic skills acquisition to verifying local school or district compliance with state education statutes, policies, and regulations. We also learned that the "unresolved dilemmas" cited in the OERI report (for example, balancing the tension between oversight and improvement, balancing statewide comparability with local ownership, and making fair comparisons) are problems encountered by other states' educational assessment and accountability programs.

A. Performance Assessment

Educational assessment systems are the foundation for educational accountability systems. All such assessment systems consist of three essential components: the routine collection of information, evaluation of that information, and institutional follow-up. Richards (1988) has studied educational assessment systems in many states and school districts throughout the nation. He describes "three prototypical models that differ according to their purpose: monitoring for regulatory compliance, monitoring for instructional diagnosis/remediation, and monitoring for school performance outputs" (p. 107). Of these three types, monitoring for school performance outputs appears most appropriate as the foundation for Hawaii's educational accountability system. In the education accountability literature, this type of assessment or monitoring system is commonly referred to as performance assessment.

The functional objective of the performance assessment approach is to promote school performance (e.g., student achievement) by focusing oversight on school outcomes. Richards (p. 115) notes that:

> "... centralized monitoring systems may be at odds with the growing efforts of educational policymakers at the national level to replace regulation with accountability. This conflict expresses itself in several reform issue areas; for example, school based management versus central control.... However, performance monitoring, which focuses on outputs, is not necessarily antagonistic to these goals. It may encourage districts to seek innovations in resource allocation and pedagogy in pursuit of higher performance."

Although the above statement lends support to the selection of performance assessment as the foundation for Hawaii's educational assessment and accountability system, it should be acknowledged that each type of monitoring system has particular limitations and weaknesses. Richards (p. 114) cites three potential problems with performance monitoring systems: (1) poorly performing schools may simply lack the capacity to respond adequately to negative results, leading to decreased motivation and, subsequently, to reduced effectiveness of self-improvement efforts; (2) "curricular narrowing" can be an unintended effect for schools that perceive great pressure to show improved results; and (3) comprehensive performance assessment systems are heavily reliant on data processing capacity (i.e., computer systems, availability of relevant databases, technical expertise and trained personnel).

The dependence of the performance assessment approach on relatively sophisticated data processing capacity points to an important concern about feasibility. The beginnings of an educational assessment and accountability system for Hawaii's public schools were sketched in Educational Assessment and Accountability Plan, Technical Report (Savard & Estes, 1988). Although largely conceptual, that plan did examine the Department's existing data processing capacity in considerable detail. The report also suggested ways of integrating data processing for an educational assessment and accountability system with existing operations and with currently planned expansions in the Department's data processing systems.

In addition, support by the 1989 Hawaii State Legislature of the Department's 1989-91 biennial budget request for developing an educational assessment and accountability system is expected to provide adequately for system development and initial implementation. Included in the appropriation were sufficient resources to meet initial microcomputer-based data processing requirements.

B. Indicators: Context-Input-Output Framework

The basic building blocks of a performance-based educational assessment and accountability system are indicators. Indicators are statistics that serve as gauges to inform policymakers, educators, and the public about the condition of the educational system and how it is changing. The OERI State Accountability Study Group's report (1988) notes, however, that "Accountability is a blunt tool unless policymakers, educators, and the public have information that allows them to determine the likely sources of a problem and find clues about how to fix it" (p. 7). Thus, what is needed is not just information about distinct elements of the educational system but also information about how the relevant elements work together to affect educational outcomes. In essence, model building is needed to identify the central features of the educational system. Our point of departure is a simple, general model of the schooling process as exemplified in Figure 1.

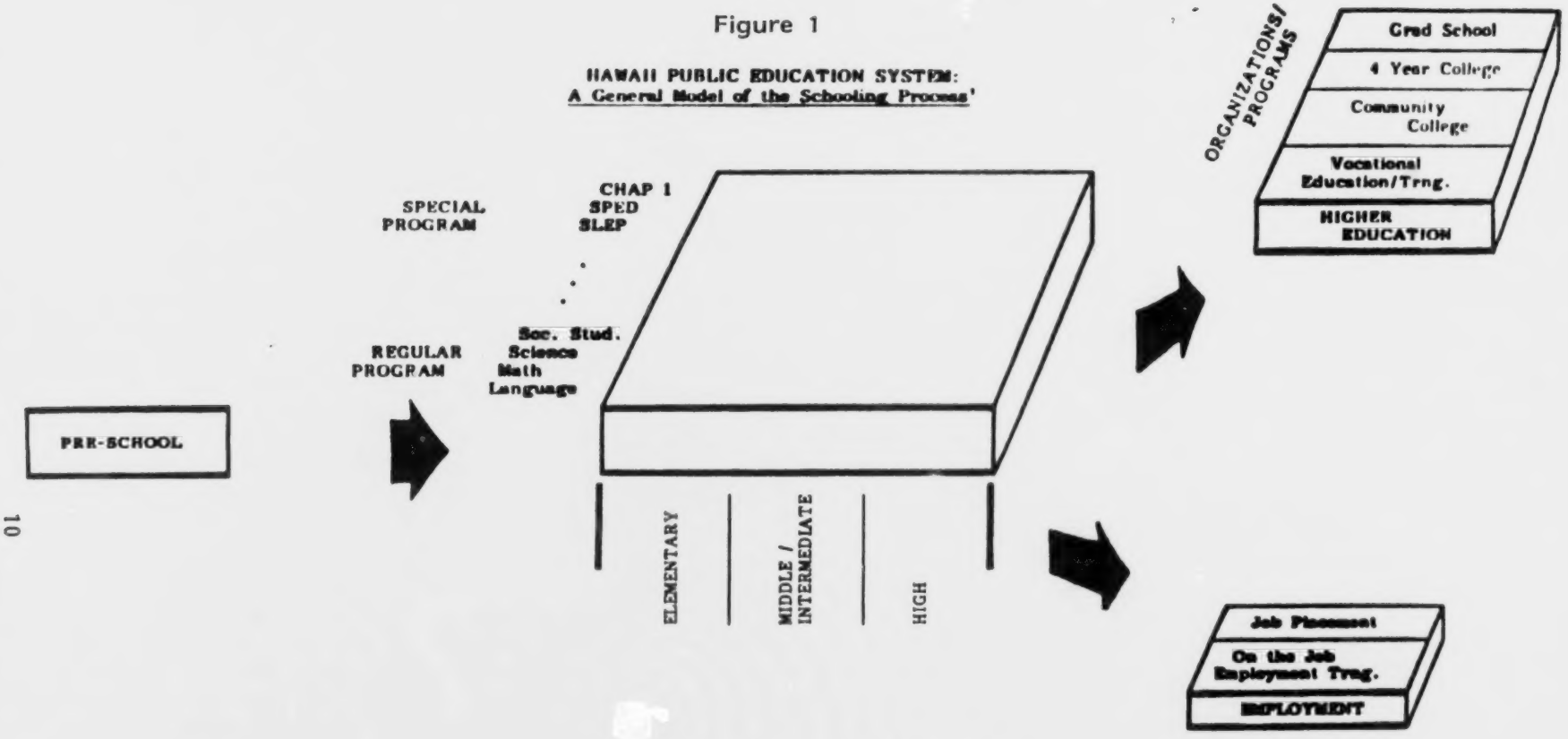
Furthermore, the basic analytical model for educational assessment and accountability we have adopted encompasses three general components: CONTEXT, INPUT, and OUTPUT. Figure 2 provides a graphic presentation of how these components are related. **OUTPUT** indicators such as graduation rates, grade point average, or performance on achievement tests gauge the health of public education. These outcome measures are the crux of the assessment and accountability system. Outcome measures, however, are necessarily viewed in **CONTEXT** with the community setting, family demographics, and the students' readiness for school. In addition to context variables, **INPUT** indicators reflective of policy guidelines and the schooling process itself are examined. Some examples of input indicators include course offerings, course requirements, staff allocation, teaching methods, and finances.

It is critical that the educational assessment and accountability system include multiple output or outcome measures that range from achievement test scores and attendance rates to disciplinary incidents and graduates' performance in the first year of college. Multiple output indicators are needed in order to represent adequately the overall results of the educational system. In addition, a focus on multiple outputs may also help to minimize unintended effects such as "curricular narrowing."

For policymakers, an understanding of relationships between inputs and a school's outcomes, as conditioned by the school-community context, will be most useful. The intent of using the context-input-output indicators framework is for its potential explanatory and diagnostic value, that is, as a guide to how the various elements of the educational system might work together to affect outcomes. Also, until such time as more complex models have been validated, and practical analytic methods for working with them

Figure 1

HAWAII PUBLIC EDUCATION SYSTEM:
A General Model of the Schooling Process'

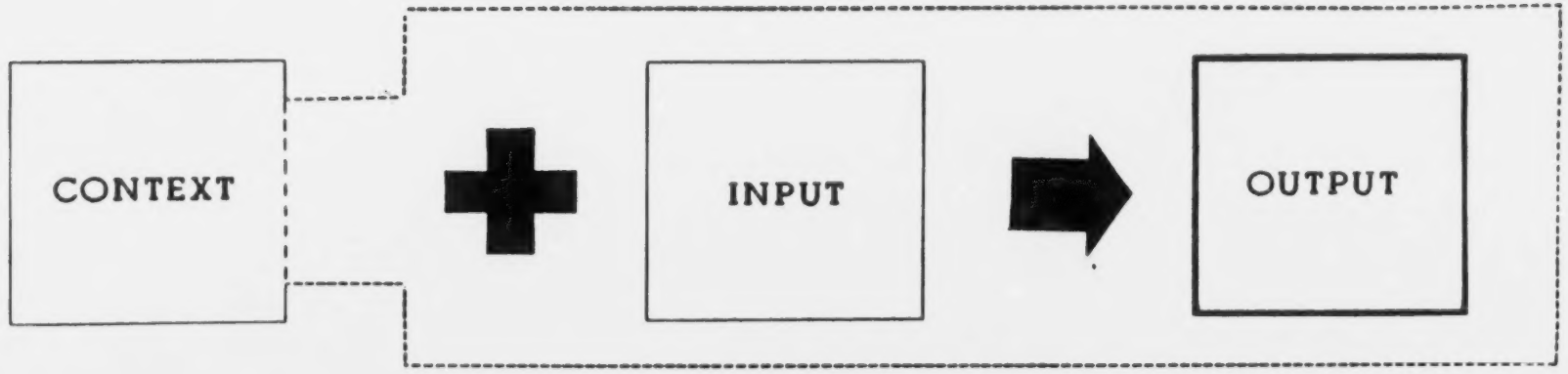


'Hawaii Compulsory Education: Mandatory attendance age 6 to graduation or age 20.

BEST COPY AVAILABLE

Figure 2

A Basic Analytical Model for Educational Assessment and Accountability



Adapted from R. Selden, *Phi Delta Kappan*, 1988.

have been developed, there is little to be gained by adopting a model more complex than the context-input-output framework.

Numerous criteria for selecting indicators have been proposed (e.g., Cohen, 1988; OERI, 1988; Blank, 1989). Essentially, the various criteria focus on (1) importance and utility, (2) technical quality, and (3) feasibility issues.

Important and useful educational indicators should be policy-relevant, reflecting conditions and trends that are of concern to policymakers and that can be acted upon. For utility to policymakers and other audiences, indicators should be aligned with long-range state goals, expected effects of reform initiatives, knowledge about effective schools, and public perceptions of the central features and outcomes of schooling. Only data of high technical quality -- that is, reliable and valid data -- should be used for indicators. Unreliable or invalid data may well be worse than no data at all. A feasible set of indicators should minimize the burdens and costs of data collection and analysis. Respondent burden, in particular, can be greatly reduced by coordinating data retrieval activities and by relying upon already existing data whenever possible. In practice, some trade-offs among the indicator selection criteria are necessary.

C. Data Sources

Several existing data sources, together with new sources currently under development, should provide a basis of sufficient scope and depth for an initial set of indicators. The previous conceptual plan contained an annotated list of 37 major data sources and related assessment activities in the State Department of Education (see Appendix B of Savard & Estes, 1988). Of these, the School Profiles is the most comprehensive and the single best data source for indicators development. Generated by the Department's Information System Services Branch, the School Profiles contain multi-year statistical information, updated annually, for each school. Drawing upon data extracted from other major data sources, School Profile data are available in the areas of student achievement (e.g., Stanford Achievement Test Total Reading and Total Mathematics score distributions, percent of students with GPAs less than 2.0 or greater than 3.0), student demographics (e.g., enrollment, ethnic distribution, percent receiving free/reduced lunch, percent limited English proficient, percent certified special education), student behavior (e.g., average daily absence, suspensions and disciplinary incidents), teacher demographics (e.g., years of experience, ethnic distribution), and school-community characteristics (e.g., unemployment rate, median income, percent of children from single parent homes, percent high school or college graduates).

Other existing data sources or assessment-related activities that will be immediately useful for outcome indicators include:

- Hawaii State Test of Essential Competencies (HSTEC)

  The HSTEC, a requirement for receiving a high school diploma, is administered annually to students in grades 9 to 12. The test measures 15 competency areas in the domains of basic and life skills. Each essential competency must be passed, but starting in grade 9 a student need pass each competency only once. Each year the test is administered to about 20,000 students.

- College Board's Scholastic Aptitude Test (SAT)

  Most of Hawaii's high school seniors applying for entrance to post-secondary education take the College Board's SAT. The examination is administered and reported by the College Board. About 50% of Hawaii's public school seniors take the test each year.

- Graduate Follow-Up Survey

  The Graduate Follow-Up Survey examines the educational and employment status of Hawaii's public school graduates almost one year after high school. Similarity in annual findings have resulted in plans to administer the survey every other year beginning with the Class of 1989.

D. Focus on Schools

The levels in the educational system at which data can be reported are related to the levels at which the data are collected. School-level data can be aggregated to form district or state summaries, but it is not often possible or feasible to disaggregate data. Although the current design focuses on uses of educational assessment and accountability information by state policymakers, it seems most desirable to consider individual schools the primary units of data collection, analysis, and reporting.

There is ample research and experience to indicate that individual schools are the basic unit of improvement in public education. Thus, the best place to observe the interaction of state, district and school policies, as they affect students and practitioners, is at the school level. Clearly, the choice of a focal level has both technical and policy implications. The unit of analysis should be comparable to the level at which policy impact is expected; most often, too, this will be the school level.

Educational assessment and accountability reports, as presently conceptualized, would be produced for each school. A state summary of information selected from the school reports, together with additional information relevant to a state level report (e.g., National Assessment of Educational Progress results, selected results from a new Survey of Public

Education in Hawaii), would also be produced. Reporting will emphasize the school as the primary unit of accountability, while providing policymakers with overall state results.

The current "School Status and Improvement Report" (previously entitled the "School Performance Report Card") is scheduled to be produced annually and to be assigned to the Educational Assessment and Accountability Project staff. There may be different views of how these related efforts can be best integrated. One pragmatic alternative is to simply adopt the current "School Status and Improvement Report" as the initial school-level assessment and accountability report and, over a period of time, adapt that report for congruence with the design concepts outlined herein.

E. Key Questions and Policy Relevance

Three key questions underlie many recurrent policymaking issues in Hawaii's public school system.

- What are the overall condition, performance, and progress of the public schools?
- What are the accomplishments and shortcomings of the educational system? Where are adjustments needed?
- To what extent are intended effects, including those of major education initiatives/reforms, being achieved?

Fundamental to the present design is the assumption that the resulting information will be used with the intent of improving the quality of public education in Hawaii. We believe the three key questions cited above serve as a central guide to providing policy-relevant information. Answers to those questions will necessarily involve several major improvement themes. Some examples of these themes include:

- Increased student achievement, particularly in verbal and higher order thinking skills;
- Improved quality and professionalization of teaching and administration;
- Improved instructional practices;
- Improved governance and organizational structure for the public school system;

- Increased role of parents and the community in the public schools;
- Increased public knowledge and understanding of public education.

F. Analysis

Given a performance assessment approach, indicators data organized in a context-input-output framework, individual schools as the primary units of data collection and reporting, and a central focus on state education policymaking issues, how will these various components be integrated, via analysis, into a cohesive assessment/accountability system? The analysis component of the present design must include three analytic functions necessary to operationalize the use of indicators for the purpose of providing policy-relevant information about schools' performance: (1) describe performance to answer the question "What is happening?"; (2) relate performance to inputs and context variables to answer the question "Why might it be happening?"; and (3) compare performance to answer the question "Is it excellent? adequate? in need of improvement?"

For descriptive and relational analyses, relatively standard statistical techniques and well-developed analytic methodologies are available. Basic descriptive statistics (e.g., measures of central tendency, dispersion) distribution summaries (e.g., frequency tables, graphs) will ordinarily be sufficient to describe performance on output indicators. In order to relate outcomes to multiple input and context variables, the methods of analysis of variance/covariance, multiple linear regression, and other forms of multivariate analysis will often be applicable.

Analytical methodologies for comparing schools' performance, however, are relatively new, not generally well-established, and often fraught with complex technical problems. Further, concerns among practitioners about unfair comparisons and the misuse of results can create considerable controversy and criticism. The OERI State Accountability Study Group's report (1988) cautioned that "One of the most politically troublesome and technically sophisticated decisions States make is whether and how to compare the performance of schools or districts with one another" (p. 24).

In concept, several different bases for conducting comparative analysis of outcomes can be used. The most common bases for comparison consist of contrasting a school's performance with: (1) State goals or standards; (2) national norms; (3) the school's past performance; (4) all other schools' performance; and (5) similar schools' performance. Most important to note is that the various types of comparisons do not yield equivalent information. That is, each type of comparison can be viewed as answering a different question. For example, where discussion concerns improvement over time, comparisons with respect to previous performance are meaningful. But that same comparison, while perhaps interesting, would be

largely irrelevant to informing a discussion about parity with national norms.

Clearly, different comparisons serve different purposes and these are not, generally, interchangeable. There are also practical and technical problems. In some cases the needed comparison data are simply not available. For example, education goals are often so generally stated that no measurable targets or standards are actually established. As another example, there is no agreed upon methodology for constructing comparisons of the "similar" schools type. In any event, it is probably unnecessary to generate (even were it feasible) all possible comparisons for all outcome indicators.

However, it must be acknowledged that we currently lack a clear guide as to which comparisons for which indicators would be most useful to policymakers. We can only exercise our best professional judgement and modify that judgement as experience and feedback accumulate.

Descriptive, relational, and comparative analyses tend to form a sequence of increasing analytic complexity, with later types building on the results from earlier ones. We envision the initial years' assessment/accountability reports as based largely on the results of descriptive and relational analyses, but also containing findings on a few selected comparative analyses of outcomes. The comparative analyses, initially, would likely use schools' past performance and/or national norms as bases for comparison.

The capacity of the Educational Assessment and Accountability System to generate comparative analyses, in particular, is expected to increase rapidly within the first two to three years of operation. By then we should have relatively complete collections of descriptive findings, a still growing but probably useful set of relational findings, and some experience with and feedback from initial comparative analyses.

G. Accountability Uses

The design of the present system utilizes a performance assessment approach; it serves as a tool for improving public education by attempting to better inform policymakers, educators, and the general public. Simply said, the design is outcome-oriented and it seeks improvement by focusing attention and discussion on educational outcomes.

A given assessment and accountability system can, at best, serve one major charge. The design of the system outlined herein is not based on a compliance monitoring model; it cannot adequately monitor compliance with state education statutes, policies, or regulations. Neither is the present system based on an instructional diagnostic model; it cannot ensure that any one particular student is making satisfactory academic progress.

Unlike the compliance monitoring or instructional diagnosis types of systems, findings from performance assessment systems do not necessarily trigger a specific, accountability-related sequence of follow-up actions. This can be viewed as either a strength or a weakness.

By contrast, for example, findings of non-compliance in a compliance monitoring system nearly always result in a fairly fixed sequence of follow-up activities: terms and a timeframe to achieve compliance are negotiated and formalized in a plan to correct deficiencies; oversight is increased; and, following an agreed upon period of time, compliance monitoring is again conducted. Note, too, that such a compliance monitoring system is well-suited to, and serves to reinforce, an organizational setting that could be characterized as centralized and bureaucratic.

The performance assessment approach does permit accountability follow-up in either centralized-bureaucratic or decentralized-professional organizational settings. It is possible, for example, to devise accountability requirements that specify what particular follow-up actions must accompany given levels of assessment results. It is also possible that, while no specific follow-up action is mandated, the general requirement is that some locally determined follow-up action will result. Realistically, the situation is not "either-or" and the problem is really one of finding the appropriate balance.

Unless assessment results are used in some instrumental way for school improvement, accountability has not been realized. The following are some uses we propose should be made of the assessment reports.

Use assessment findings/reports to:

- Provide for accountability to the general public;
- Provide for accountability to policymakers and to assist the development of educational policy;
- Guide the Department's program planning and budget development; and,
- Guide School Improvement Plan development.

While the above accountability uses can be realized almost immediately, other potential uses would require additional development. Results from some other states' assessment/accountability systems are used to reward or recognize high performing schools, and to assist and/or intervene in low performing schools. Whether such accountability uses are desired for Hawaii's public schools and, if so, how to operationalize such uses, would require extensive discussion and considerable planning. Such uses are

beyond the scope of the present plan, but are mentioned here as a kind of "place holder" for future consideration.

H. Flexible Implementation

There is ample evidence to indicate that ineffective implementation is a pervasive problem with many initiatives involving social service programs and social policies, and an apparent root cause of the failure of many social policies and programs to achieve their intended effects. Berman (1980) has studied this problem and noted that:

> "Two schools of thought and practice have developed regarding the design of implementation strategies. One view, which could be called programmed implementation, assumes that implementation problems can be made tolerable, if not eliminated, by careful and explicit preprogramming of implementation procedures. The other view, which could be called adaptive implementation, holds that policy execution can be improved by processes that enable initial plans to be adapted to unfolding events and decisions" (pp. 205-206).

Berman further noted that a mismatch between implementation approach and context of the situation in which the initiative is to be implemented can actually worsen the very implementation problems the approach is supposed to circumvent. He also discussed several "situational parameters" (pp. 213-220) that could serve as a general guide to the selection and design of implementation strategies. While a review of this topic is beyond the scope of the present plan, we note that a mix of implementation strategies may be most appropriate for the Educational Assessment and Accountability System. For those implementation areas that are highly dependent upon professional judgement rather than routine application of simple decisionmaking rules, adaptive rather than pre-programmed strategies will work best.

Also, we recognize that educational policies and programs are not static; they are often "moving targets" that change over time. Michael Cohen, the associate director for education programs for the National Governors' Association, recommended that:

> "State assessment systems should be adaptive, continuously evolving over time. The content, structure, and operational procedures of state assessment systems should be modified in response to such factors as early experience with the system, changing state goals for education, growth in the knowledge base regarding effective practices, and natural shifts in the attention of state-level policymakers" (1988, p. 585).

III. Implementation Plan

The present five-year implementation plan for educational assessment and accountability covers the time span 1990-1994. In response to the recommendation contained in the Legislative Auditor's final report on the Evaluation of the Administrative Flexibility Legislation Affecting the Department of Education and University of Hawaii (1989), this section describes the plans developed by and implementation steps taken by the Department, and joint activities conducted by the Department and the University of Hawaii that relate directly to educational assessment.

A. Goals and Objectives

The following four goals define the functional scope of the Educational Assessment and Accountability System.

- Establish a statewide system of educational assessment and accountability to systematically examine the health and quality of Hawaii public education.
- Institute public accountability through periodic reports on public education to the community-at-large (parents, businesses, taxpayers).
- Inform educational policymakers and educators about the condition, performance and progress of Hawaii public education.
- Work collaboratively with the University of Hawaii system to coordinate educational assessment activities between the Department and higher education.

Of noteworthy interest are the national education goals drafted by President Bush and the nation's governors at the recent education summit held on September 28, 1989. The summiteers, including Governor John Waihee, agreed to set specific national education goals for a number of priority areas such as dropouts, school violence and student achievement (Honolulu Advertiser, September 29, 1989). The overall consensus reached by the governors and the President is to facilitate restructuring of public schools through the establishment of "performance goals" and standards.

The need to specify desired outcomes is clear and the call for "measurable goals" will necessitate further delineation through relatively specific objectives. Similarly, consistent with the intent of the four broad goals outlined above, a number of major objectives have been drafted for the Educational Assessment and Accountability Project (Table 1).

Table 1

Goals and Major Objectives of the Educational Assessment and Accountability (EAA) System for Hawaii Public Education

Goals	Major Objectives
1. Establish a statewide system of Educational Assessment and Accountability to systematically examine the health and quality of Hawaii public education.	1.1 Planning and Evaluation Branch personnel will monitor and participate in efforts to improve educational assessment beginning Spring 1989.
	1.2 EAA Project staff will utilize selected measures in the SSIR as interim status indicators for the EAA System while developmental work is conducted on an initial set of context, input and output indicators beginning Fall 1989.
	1.3 An Advisory Panel whose membership will consist of policymakers, educators, parents and the community-at-large will be established in August 1990 to serve in an advisory capacity in overseeing the development of the EAA System.
	1.4 Policymakers, educators, and Advisory Panel members will help identify and prioritize policy issues and assessment questions (on-going).
	1.5 EAA Project staff will research and refine an initial set of context, input and output indicators consistent with the three purposes of the EAA System by December 1991.
	1.6 EAA Project staff will research and identify, with the assistance of a special Advisory Panel subcommittee on standards and an independent consultant, performance criteria necessary to institute educational standards in the areas of student achievement and behavior by December 1991.
	1.7 EAA Project staff, with the assistance of an external contractor, will design a draft data collection plan to include data definitions, data collection instructions and procedures, quality control procedures, documentation for training school-level personnel, and data collection forms by October 1992.
	1.8 EAA Project staff will design and develop a database management system to store, compile, validate, analyze and retrieve EAA information by December 1992.
	1.9 EAA Project staff will design and develop the analytical methodology required to provide descriptive as well as analytical links among educational indicators by July 1993.
	1.10 EAA Project staff will develop the items and format for an EAA school-level report that integrates SSIR data for elementary schools by December 1993.
	1.11 EAA Project staff will develop the items and format for an EAA school-level report that integrates SSIR data for secondary schools by December 1993.
2. Institute public accountability through periodic reports on public education to the community-at-large.	2.1 EAA Project staff will assist the Department's Public Relations staff in preparing brief summaries of statewide EAA data for publication in local newspapers commencing December 1994.
	2.2 EAA Project staff will design and issue a statewide biennial report that clearly and concisely summarizes the highlights of the condition, performance and progress of Hawaii public schools beginning December 1994.
3. Inform educational policymakers and educators about the condition, performance and progress of Hawaii public education.	3.1 EAA Project staff will issue a biennial State Report on EAA for policymakers (based on the SSIRs submitted by individual schools) commencing Spring 1990.
	3.2 EAA Project staff will research and develop a composite index of leading educational indicators to serve as an "early warning system" for policymakers and decisionmakers by December 1992.
	3.3 EAA Project staff will prepare and issue a biennial statewide report on the overall condition, performance and progress of Hawaii public schools based on a comprehensive educational indicator system commencing December 1994.
4. Work collaboratively with the University of Hawaii system to coordinate educational assessment activities between the Department and higher education.	4.1 EAA Project staff will coordinate efforts with the University of Hawaii Office of Planning and Policy to re-instate Freshmen performance reports generated on a statewide and school-level basis beginning July 1989.
	4.2 EAA Project staff will work collaboratively with University of Hawaii program officers and institutional analysts to obtain demographic and performance data on community college students through the recently implemented Hawaii Community Colleges Student Tracking System beginning July 1990.
	4.3 EAA Project staff will work collaboratively with University of Hawaii program officers and institutional analysts to design and develop a student tracking system for students attending the Manoa campus (on-going).
	4.4 The Department's Personnel Office will assist in providing evaluative feedback to the University of Hawaii College of Education on first and second-year teacher recruits for Hawaii public schools (on-going).

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B. Guiding Principles

The following guiding principles serve to further direct the development and implementation of assessment/accountability activities:

- Information produced by the Educational Assessment and Accountability System should be relevant to the development and revision of educational policy and to the assessment questions directly related to policy issues.

- The results and report formats should be clear and easily understood by policymakers, educators and the community-at-large.

- An independent advisory panel should be established to assist in the development and review of the Educational Assessment and Accountability System.

- The Educational Assessment and Accountability System should be based on an analytical model that serves as a conceptual framework for identifying, developing and linking a set of educational indicators.

- Assessments of educational quality should not be based solely on single indices of performance such as standardized tests; rather, multiple indicators with analytical links among educational input, context, and output elements should be used.

- The Educational Assessment and Accountability System should be adaptable, evolving over time to meet future assessment needs necessitated by changes in the public education delivery system itself (e.g., School/Community-Based Management).

- The school should serve as the fundamental unit of analysis, consistent with its role as the primary agent of change; efforts to disaggregate data at the student level should be attempted if deemed necessary and costs are not prohibitive.

- The Educational Assessment and Accountability System should utilize and integrate extant data to the fullest extent possible to reduce paperwork and data collection burden on school personnel.

C. Critical Elements

There are seven critical elements that serve as cornerstones of the Educational Assessment and Accountability System:

- Policy issues and assessment questions
- Indicator system

- Data collection plan
- Standards
- Analysis
- State and school-level reports
- Informed decisionmaking

Each is briefly discussed in the following section. Following these discussions are descriptions of the system organization, administration, implementation schedule, costs, and evaluation.

1. Policy Issues and Assessment Questions.

   The Educational Assessment and Accountability System is intended to be more than a mere collection of data. Foremost among our guiding principles is the requirement that information be relevant to policymaking and public accountability. Much work needs to be done in this area. None of the other states have been entirely successful in this regard.

   Assessment questions subsumed under each policy issue area are essential to specifying the type and scope of data required. These questions are, by necessity, concrete and reflect more specific concerns covered broadly by policy.

   The following are examples of policy issues and assessment questions that could be addressed.

Policy Issue #1: Is the scope and sequence of curriculum offerings adequate in preparing graduates for subsequent study in higher education?

Assessment Questions:

1. *What percent of applicants who graduate from Hawaii public schools are accepted at Hawaii's 4-year colleges?*

2. *What percent of Hawaii public school graduates receive advance placement credits, or course waivers as freshmen at UH Manoa?*

3. *How many Hawaii public school graduates entering the UH system are required to enroll in remedial courses in language arts? in math?*

4. *Which indicators best predict freshmen performance in the UH system?*

Policy Issue #2: *How extensive are teacher shortages in Hawaii public schools? In which program areas are these shortages most critical?*

Assessment Questions:

1. *How many courses, aggregated by program areas (language arts, math, science, social studies, fine arts, vocational education), are being taught by teachers out of their field of certification?*

2. *How many teachers teach in their respective fields of certification at least 75% of the time?*

3. *How many teacher positions, by program areas, will be vacated in the next five years due to anticipated retirement?*

4. *What percent of the anticipated teacher vacancies over the next five years can be filled by UH College of Education graduates?*

Clearly, the number of policy issues and assessment questions could easily be overwhelming. Policy issues will need to be examined and prioritized to keep assessment activities at a manageable level. One of the objectives within the present implementation plan will be to compile and organize major policy issue areas and assessment questions. Some preliminary work in reviewing current policy issues needs to be done in the first year of the implementation timeline.

Initial work in this area will involve a literature review, interviews with local policy analysts, and consensus building on policy issue priorities. Next, the Educational Assessment and Accountability Project staff will conduct a number of in-depth interviews with policymakers to identify their major information needs for policy development and monitoring. Completion of these activities will enable Educational Assessment and Accountability Project staff to develop an initial set of prioritized policy issues and assessment questions for field-test by the end of the second year.

2. Indicator System.

Crucial to the establishment of the Educational Assessment and Accountability System is the development of an indicator system. Figure 3 provides a graphic look at how indicators relate to the basic analytical model.

The Department has already begun some preliminary work on reviewing potential indicators. A lengthy yet far from exhaustive list of such indicators has been drafted in a form of a taxonomy (Educational Assessment and Accountability Project Working Paper #2, A Taxonomy of Indicators for Educational Assessment and Accountability; August 1989 [Draft]).

The taxonomy lists potential indicators by assessment domains. For example, context indicators are organized under two assessment domains: demographics (1.10) and early education experience/readiness (1.20). We have underscored potential to emphasize that this taxonomy was designed to embrace much more than would be feasible in an actual educational assessment and accountability system.

The taxonomy is specifically intended to serve as a resource document to guide further efforts toward implementing a useful, representative, and parsimonious set of educational indicators. A sample of indicators is proposed here (see Table 2), with the understanding that a thorough review and field-test will be required for many, if not most, of the selected indicators.

Year 1 in the implementation plan will involve a review and field-test of selected indicators. Each of the selected indicators will be examined in terms of utility, reliability, and paperwork burden. Relationships among the various context, input and output variables will also be analyzed where possible. Simultaneously, developmental work on other indicators will be conducted if judged useful, feasible and promising for policy decisionmaking, public accountability, or improving educational practices.

It should be noted here, that this research and development work will be necessary throughout most of the implementation timeline proposed herein. Unfortunately, the quality of the data elements are occasionally problematic due to definitional ambiguity or variability in data collection practices. In point of fact, the quality of educational statistics is in need of improvement in all states, not just Hawaii.

Several new data sources are currently under development or being planned. Some additionally useful educational indicators, based on

Figure 3

A Conceptual Framework for Context-Input-Output Indicators Utilizing
A Basic Analytical Model for Educational Assessment and Accountability

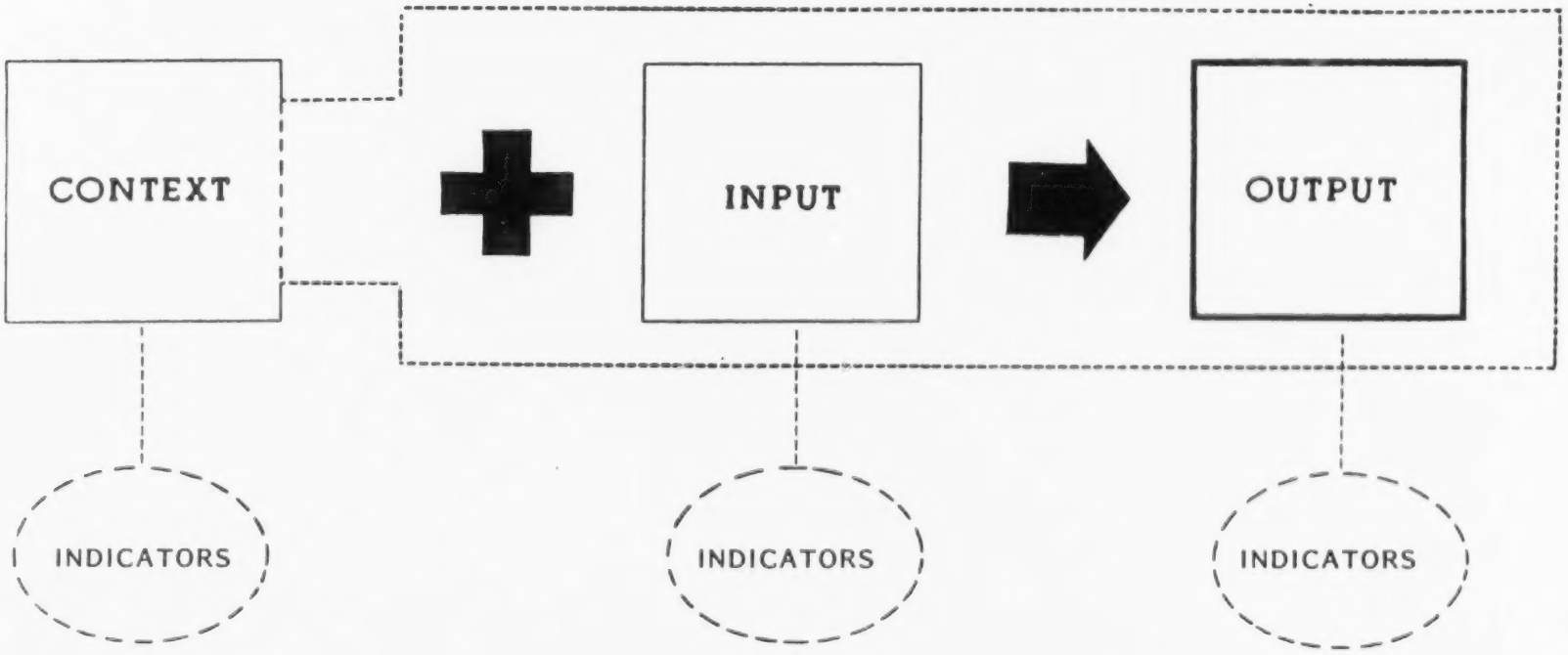

Table 2

Sample Set of Initial Indicators

	CONTEXT	INPUT	OUTPUT
All Schools	• % students from single parent homes (census) • % students with language other than English spoken at home • % SLEP (Levels 1, 2) • % SPED (all certifications) • % SPED (Mild handicaps only) • Median family income, community (census) • % high school graduates, community (census) • % college graduates, community (census) • % unemployment, community (census) • Ethnic composition, student body • Student transiency rate	• School organization: elementary, secondary, combination • Educational initiative/reform implemented: SCBM, Year Round schedule • School enrollment • Student-teacher ratio • Expenditures, per pupil • Teacher characteristics: - age - years experience - average absences • Principal turnover index • % classroom facilities short/over	• Academic performance - Stanford Achievement Test Math Reading - Grade point average (GPA) - No./% grade retentions • Average daily attendance rate • Behavior/discipline - Index of at-risk behavior, drug & alcohol - Suspension rate for type A offenses - Suspension rate for type B offenses - Arrest rate for school • "School Climate" survey • National School Recognition program
Elementary only	• % students on free/reduced lunch program • % students with 6 months or more pre-school experience • % EPSS considerable needs	• Instructional time allocation (by areas) • No./% of grade levels participating in annual standardized testing	• Continuation rate, subsequent enrollment in public secondary school
Secondary only	• % students with family receiving Aid to Families with Dependent Children or public assistance	• Course enrollments (by areas)	• Academic Performance - Nat'l Assessment of Educational Progress - Completion rate - % seniors with 20 or more earned credits - No./% national merit scholars semifinalists finalists - Scholastic Aptitude Test • Student satisfaction (graduate follow-up) • Higher Education - University of Hawaii "going rates" (proportion of students entering UH) - Freshman GPA • No./% vocational education students employed in field of training

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these new data sources, are expected to become available within the *next one to two years. Most important among the new data sources* are:

- University of Hawaii's Freshman Report of High School Graduates

  Prior to the implementation of a new computer system in 1986, the first year's performance (i.e., college grades and course enrollments) of public school students enrolled at the University of Hawaii were summarized and reported to each public high school. The Department's Planning and Evaluation Branch staff is currently working with the UH Office of Institutional Research and Office of Admissions and Records to revitalize this report, possibly with some expansion of data elements, beginning with the high school graduating class of 1989.

- National Assessment of Educational Progress (NAEP)

  Hawaii, along with 41 other states, the District of Columbia, and several territories will participate in NAEP's Trial State Assessment Program. Although the program's authorization precludes district or school achievement comparisons, the NAEP results may be quite useful for state-level assessment reporting. Administration of the state-by-state trial testing, limited to mathematics in grade 8, is scheduled for February 1990.

- School Climate/Effective Schooling Survey

  Plans for the development, pilot testing, and statewide implementation of a uniform School Climate/Effective Schooling Survey have been drafted. The purpose of the survey is to describe the effectiveness of several major educational process variables as perceived by teachers, students, and parents. The survey could provide data for developing additional input indicators for educational processes, an area in which too little information is currently available (but also an area which poses difficult measurement and data collection problems). Contingent upon successful development and pilot testing, this project could be implemented statewide beginning Spring 1991.

- Survey of Public Education in Hawaii

  Envisioned as Hawaii's counterpart to the national "Annual Gallup Poll of the Public's Attitudes toward the Public Schools" (e.g., Elam & Gallup, 1989), the survey would provide for systematic monitoring of public confidence and satisfaction with

the state's public school system. Selected results would be used as output indicators. By including questions from the nationwide Gallup Poll, the State can compare the opinions of Hawaii's citizens with those of citizens nationally. The survey would also provide an opportunity to assess the public's attitudes toward special issues (e.g., support for particular local school reform efforts). Contingent upon securing the services of a contractor to conduct the survey data collection via telephone interviews, the project is scheduled to start in Spring 1990.

- Instructional Practices Surveys (Testing Supplement)

  The NAEP and some states find that collecting short supplemental staff surveys with their achievement assessments gives useful information. Such surveys could provide data for developing additional input indicators for educational processes, for example, about students' opportunity to learn the topics tested. The correlation of these inputs/processes with achievement test results could greatly improve the diagnostic utility of assessment information for practitioners and policymakers alike. A small-scale trial test of this approach, in conjunction with the Department's Statewide Testing Program, is under development for piloting in Spring, 1990.

As work progresses on the development of the initial set of indicators and new data sources, a number of measures will be scrutinized specifically for potential use as "leading indicators" (Oakes, 1986). The concept of a leading indicator (borrowed from econometrics) is an intriguing one for educational assessment and accountability. The intent of establishing a small array of leading educational indicators is to provide a very concise account of the condition and direction of public education, and to provide, if possible, an "early warning system" for educational policymakers.

3. Data Collection Plan.

In the present document, the term "data collection" is used in its most generic sense. It includes specifications of the data definition, instrument(s), target respondents, and standard procedures for data acquisitions and recording.

Data Definition. The initial set of indicators will require operational definitions for each data element of interest. Even seemingly "basic" indicators such as attendance rates, graduation rates and dropout rates are often inconsistently defined and reported across states, districts, and schools. The "Wall Chart" indicators, first introduced by the U.S. Department of Education a few years ago, exemplifies this point.

Critics noted that those hastily compiled statistics were seriously misleading when used to subsequently rank and compare the states. In response to the numerous concerns voiced by the educational community (over the inequities and distortions created by the "Wall Chart" statistics), the Council of Chief State School Officers (CCSSO) began work on educational indicators in conjunction with the National Center for Educational Statistics (NCES). The CCSSO's aim is to derive comparable, standardized definitions for all states within the next several years. The staff for Hawaii's Educational Assessment and Accountability System will be closely monitoring CCSSO's/NCES' activities in this area, and will attempt to integrate existing indicator definitions with nationally recommended definitions where appropriate and feasible.

Procedures. Detailed data collection procedures will be drafted during the first few years of the implementation plan. As developmental work progresses in other related areas (e.g., prioritizing policy issues and assessment questions, and operationalizing data element definitions), data collection instruments and procedures will be refined. Wherever possible, though, additional paperwork burden will be minimized by utilizing extant data from existing educational assessment activities.

Implementation. The first step in data collection will be the development and definition of an initial set of context, input and output measures. Some indicators will be based on singular statistics (e.g., number of students receiving free/reduced lunch). Others will be composite indicators. Examples of composite indicators include student-teacher ratio, average daily attendance, and the U.S. Department of Education's index of "educational service requirements" (Oakes, 1986; p. 4).

The second step will involve the development and refinement of data collection forms and instruments to obtain information not available from existing sources. Data collected will be collated, tabulated and stored in computer database files created for the Educational Assessment and Accountability System.

These activities require a third step in the data collection scheme: the establishment of a database storage and retrieval system. Initial computer hardware has been procured for the Educational Assessment and Accountability System in Summer 1989. An IBM PS/2 model 80 microcomputer with 115 megabytes of storage capacity will serve as the primary data storage unit. Software required to store, retrieve and conduct data analyses will be purchased shortly as specifications for storage, retrieval, analyses and reporting become clearer. The primary data entry methods include keypunching, computerized

scanning and, where possible, computer file transfer from the Department's Information System Services Branch. The sheer volume of some types of student and school data (e.g., course enrollments and grades) will require the supplemental use of the State's larger IBM mainframe.[1]

The fourth step, and an especially important aspect within the data collection design, is a quality assurance component to provide validity checks and data quality controls. Poor data quality is currently a problem in a number of areas. A set of quality assurance checks will need to be developed to encourage accurate data reporting. Such quality checks coupled with additional, direct incentives for schools should clear up the data collection problems considerably.

Examples of quality assurance provisions that may be implemented on a trial basis include: (1) cross-check counts for figures logically related or dependent across different indicators; (2) random audits by the Management and Compliance Branch of the Department of Education or an independent, external agency of a small proportion of schools (5%); (3) development of data processing algorithms to identify anomalies in school performance data (e.g., large percentage changes, unexpected pattern alterations); and (4) development of incentives for complete and accurate reporting.

Some ensuing steps in the data collection plan are not readily or easily described at present. There is a potential for computer file transfer directly from schools, but the infrastructure required for direct electronic transfer is not yet in place. Of special interest is the Student Information and Program Management System (SIPMS) currently under development. It is quite conceivable that the Educational Assessment and Accountability System and SIPMS could share communication lines and database access. The Financial Management System (FMS), too, utilizes a direct school to district/state link via a communications network supported by the Information System Services Branch (ISSB) within the Department.

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[1]At this juncture, a caveat is needed to mention plans for reorganization of the Hawaii State Department of Education. Especially pertinent to the current discussion is the plan to establish a new Office of Information and Technology Services under the Superintendent of Education. It is uncertain how the reorganization will affect data collection procedures for the Educational Assessment and Accountability System. This, again, points to the importance and usefulness of the criteria of system adaptability.

On the other hand, several additional and supporting activities can be clearly anticipated: producing complete documentation of data collection procedures, updating data collection instructions and guidelines, and providing related in-service training. Whatever the outcome of the Student Information and Program Management System, or changes in school management practices, such supporting activities will be necessary to a successful data collection effort.

Also envisioned is the complete integration of the School Status and Improvement Report (see Appendix B) into the Educational Assessment and Accountability System. Measures contained in the School Status and Improvement Report can serve as an interim set of educational indicators. Future data collection from the school level is not anticipated to be much different from that utilized for the current School Status and Improvement Report. The current attempt to provide schools with forms containing pre-printed data available from the Department's Information System Services Branch is of special interest. If that attempt encounters no serious difficulties, the Educational Assessment and Accountability System will use similar procedures.

4. Standards.

Educational standards are uncommon in education today. It may be that establishing standards in education has heretofore been viewed an impossible task. It is true that the goals of education are many and not necessarily consistent, reflecting differences in visions of what the future should be. Moreover, there exist a myriad of concomitant educational objectives. And there are no agreed upon ways to go about setting educational standards. All of these factors contribute to great difficulties in establishing standards, but perhaps the most salient barrier is the lack of a widely acceptable <u>model</u> of educational assessment.

Why is the absence of an agreed upon assessment model of significance? The answer lies in its capability to infuse meaningful comparisons within a conceptual framework. An assessment model, in essence, provides the structure or "glue" that anchor operational activities. Assessment approaches can otherwise take a variety of disassociated forms. One could, for example, assess the relative improvement or progress of a student, class, school or state over time by comparison against a particular baseline measure. Alternately, these same units of analysis (student, class, school, state) could be evaluated against absolute criteria and then compared with each other. The comparisons could also incorporate an ordinal scale to produce rankings (essentially what was done in producing the U.S. Department of Education's "Wall Chart"). There are other methods, although still

experimental in nature, to compare schools with other "similar" schools. It is also possible to establish standards using nationally norm-referenced or locally norm-referenced criteria. There seems to be come current interest in the possibility of establishing standards by using expert/professional judgement.

Some recent developments in standard setting are worth noting. Several months prior to the national education summit, Secretary Cavazos posed a challenge to the governors of each state to address a number of specific educational concerns. Some of these challenges employed a minimum standard (e.g., 90% attendance rate), though details are lacking on whether such standards are across-the-board, or are intended primarily for elementary or secondary levels. Secretary Cavazos' standards seem somewhat arbitrarily set, based on national data. Nonetheless, these are standards, and should the governors choose to accept the challenge, the end result will in effect produce a national and state-by-state indicators set that incorporate national norms. It appears the governors have accepted the challenge, at least in concept, to establish national educational goals and standards (Honolulu Advertiser, September 29, 1989).

A similar challenge was encountered by the Task Force that reviewed revisions made to Hawaii's School Performance Report Card in Spring and Summer of 1989. The question of standards for outcome measures was brought to the attention of Task Force members on several occasions. The Task Force's consensus, ultimately, was to defer further discussion to another study group more adequately prepared to address standards setting issues directly. In retrospect, it was probably the most pragmatic and politically astute decision made.

The area of standards setting is indeed difficult. But the need to establish educational standards such as minimally acceptable performance expectations (i.e., minimal standards) based on strong rationale rather than impulse seems more critical than ever. School, district and state officials may not be so adamantly opposed or fearful of standards if results are truly useful, and are analyzed cautiously and reported fairly.

The first year of the implementation plan will include preparations for convening a special study group on standards setting. Due to the difficult and complex nature of the task, the Department will likely conduct a nationwide search to acquire the services of professionals with expertise in this area. A number of highly reputable institutions, including the RAND Corporation and several major universities and educational agencies, has expressed a willingness to help Hawaii with standards setting. Simultaneously, the Educational Assessment and Accountability Project staff will initiate work on reviewing pertinent

literature on establishing standards during this first year. The second and ensuing years will be devoted to preparation of materials necessary for use by the special study group, documentation of study group recommendations, and field-testing of educational standards for selected indicators prior to formal adoption. A key operating principle underlying efforts in this area is that of proceeding cautiously. This is an exceedingly sensitive issue for many stakeholders, and Hawaii's efforts will be pioneering and viewed as an example -- whether good or bad -- by other states.

5. Analysis.

The critical element of establishing educational standards is seen as a necessary but insufficient condition for facilitating analysis of school performance. The two critical elements go hand-in-hand, but as difficult as standard setting may be, securing analytical whys and wherefores must stride a step further.

How can the adequacy of a school's performance on a set of outcome indicators be operationally defined? A school's performance is obviously affected by the availability of basic resources such as personnel, textbooks, and classrooms. However, it is not only the amounts but also the ways in which the inputs are utilized that is important. For policymakers and educational administrators, the allocation, distribution, and organization of resources for improved educational outcomes are central concerns. Assessments of school performance that aim to provide policy-relevant information must focus, at least in part, on educational inputs and input utilization.

A school's performance can also be affected, positively or negatively, by context factors (e.g., socioeconomic status of the school's community). Most context factors are ordinarily beyond the immediate control of either the school or the school system. Nonetheless, context factors differ considerably from school to school and do affect educational outcomes. Any fair assessment of a school's performance must somehow take into account or control for variations in context between schools.

Clearly, the key problem is to develop an analytic methodology capable of relating inputs to outcomes while taking into account school-community context factors.

Proposed Methodology. Given the multidimensional context-input-output framework to be used, and considering the largely quantitative data to be contained therein, statistical methods for data reduction and analysis are required. One proposed analytic approach includes the technique of multiple linear regression (MLR). MLR is

a general statistical technique through which the relationship between a criterion (dependent) variable and a set of predictor (independent) variables can be analyzed. For present purposes, the most important uses of the technique are: (1) to identify the best sets of context and input (independent) variables that contribute to the prediction of each given outcome (dependent) variable and to evaluate the accuracy of the resulting "prediction" equation; and (2) to control for the confounding of context variables in order to evaluate the specific contributions of inputs to outcomes.

Using the MLR analysis technique, two distinct approaches to assessment methodology could be developed. The first approach is characterized by the use of MLR to obtain clusters of schools grouped in terms of their similarity on context variables. Under this approach, MLR is employed primarily to obtain the school clusters. The technique need not be used to directly compare a school's actual outcome values with the "predicted" or "expected" values generated by MLR analysis. Instead, a school's actual outcomes are compared with the actual values of similar schools in the same cluster. This approach, by limiting comparison to similar schools, circumvents the often heard criticism about "comparing apples with oranges."

The second approach is characterized by the use of MLR to take into account and adjust for the joint effects of context variables in order to generate "expected" values of the outcome indicators. The assessment strategy employed in this approach is to then compare actual outcome values with MLR-generated "expected" values. No explicit clustering of schools is necessary using this approach. Essentially, a statistical "leveling of the playing field" is realized within the MLR procedure so that the resultant "expected" values have been adjusted for school to school context differences.

Several states currently utilize MLR approaches as part of their assessment/accountability systems. A few states (e.g., California, South Carolina) rely extensively on variants of the two prototypical approaches outlined above. MLR-based approaches, however, are not without limitations and problems.

The major areas of limitations and problems include the following:

- Technical Limitations
    - Results for small schools may be unreliable and can be influenced by the unusual performance of only a few students. This problem, however, is endemic to all statistical analysis of quantitative data and not unique to MLR analysis.

- The precision of MLR-generated estimates and the confidence that one can have in conclusions derived from MLR analysis is directly dependent upon the number of cases ("n" size) available for analysis. Since schools will be the basic unit of analysis, and because it may be necessary to develop separate sets of regression equations for elementary and secondary schools, there is some uncertainty as to whether Hawaii's public school system is large enough for reliable application of MLR analysis.

- Utility Problems

  - MLR analysis is not easily understood. There is considerable evidence, from both research and practical experience, to indicate that what decisionmakers and policymakers don't understand, they won't use.

  - The results of MLR analysis provide school assessment information based on a locally norm-referenced comparison. That is, the resulting information is of the general form "School X's result compared to those from similar Hawaii public schools." This may represent an information utility problem, and an inherent limitation of MLR analysis, if what policymakers need instead is performance assessment information of another type (e.g., based on comparisons with state standards, national norms, or past results).

- General Concerns

  - A general concern with any analysis that groups similar schools together in order to adjust or control for contextual differences is the possibility that "self-fulfilling prophecies" of low performance expectations might be inadvertently created.

Considering the experience of other states that have used MLR in their assessment/accountability systems, together with the potential problems and limitations noted above, it seems advisable not to base Hawaii's educational assessment methodology on MLR analysis alone. Rather, the proposed methodology includes MLR analysis but as only one part of a comprehensive sequence of analysis. Following is a brief sketch of the proposed assessment methodology.

PART 1 -- Current Performance Compared to State Standards

For each outcome indicator, compare a school's current performance with the established state standard or criteria. Simple, easily understood information is provided by such comparisons. The assessment information directly answers the basic question "Is the school's performance excellent? adequate? in need of improvement?"

Agreed-upon state standards are required. If the standards target minimally acceptable levels of performance, no controls or adjustments for context differences between schools would be necessary.

PART 2 -- Current Performance Compared to Past Performance

For each outcome indicator, compare a school's current performance with its past performance. This assessment information directly addresses the question "Is the school's performance improving?"

Multi-year trend data, defined and measured in the same way over time, are required. In addition to the performance analysis, relational analyses to identify context or input variables that might be consistently related to changes in trends can provide important clues for decisionmakers and policymakers about possible ways to attain further improvements.

PART 3 -- Current Performance Compared to That of Similar Schools

For each outcome indicator, use MLR analysis ("expected" values approach) to compare a school's actual performance with its' "expected" performance. This assessment information addresses the question "Is the school's performance as good as can be expected, given its context and inputs?"

Complete, accurate data for outcome, context, and input indicators are required. Conceptually, this assessment information should be of considerable interest and value to both educators and policymakers because it will provide insight into the effects of inputs on schools' outcomes while the effects of context variables are held constant. The confidence that should be placed in MLR-based assessment results, however, will depend upon the extent to which the previously noted limitations of MLR analysis actually come into play.

The Role of Analysis in Addressing Key Questions. The proposed analytic approaches under current development are, by design, geared to address the three key questions presented in Chapter II (p. 14). Each of the three-part comparisons is essential to addressing the key questions.

The first key question serves as an example. The question is, in itself, a three-part inquiry:

> "What is the overall condition, performance, and progress of public education?"

The application of minimum state standards will be highly relevant to appraising the condition of public education. In the absence of minimal standards, it would be difficult to answer the related question: "What is the quality of public education?"

Similarly, the application of MLR analysis can be useful in appraising the adequacy of performance. Though still experimental in nature, the MLR technique does attempt to address directly the question, "Are the schools' performance as good as can be expected, given their context and inputs?" Again, strong emphasis on propriety considerations should accompany any interpretations based on MLR.

Finally, the assessment of school performance over time is most useful in determining the progress being made in public education. "Are the majority of schools improving?" "In which program areas have there been substantial gains (or losses) in educational outcomes?"

To avoid oversimplifying relational links among the three analytical approaches and further assessment questions, it may suffice to say that any assessment question will likely be addressed using multiple analytic approaches.

Several preliminary projects were initiated during 1988-89 that will assist with development of the system's analytic component. Two of these seem noteworthy. First, we obtained a portion of the School Profiles data base and have conducted a fairly large amount of exploratory analysis with it. This activity has provided, and continues to provide, much practical "hands on" experience. For example, difficulties validating the contents of electronically transferred files, and problems with ambiguous codes for missing data values were encountered and, eventually, resolved. Where several substantively overlapping measures are available (e.g., percent of school's enrollment receiving free or reduced price meals, percent of school's enrollment from families receiving AFDC and/or General Assistance), an approach to reviewing the relative technical strengths and

weaknesses of alternative measures has been constructed. In terms of relational forms of analysis, a number of different methods have been tried and some consistent relationships between several context and outcome measures were identified.

Second, we have begun to develop an analytic approach to the problem of making comparisons among "similar" schools. Such attempts elsewhere (e.g., California, South Carolina) have limitations, both technical and in terms of acceptance by educators, that we hope to circumvent. This effort is currently at the conceptual stage of development (outlined in Educational Assessment & Accountability Project Working Paper #3, Proposed Method for Assessing School Performance; August 1989 [Draft]). Although promising, the approach needs additional refinement, a thorough conceptual critique, and pilot testing with Hawaii's data.

Next steps. There is much exploratory and developmental work to be done in this area. The Context-Input-Output analytic model and the establishment of an indicators system provide the basic ingredients necessary to initiate the Educational Assessment and Accountability System.

Further developmental work in three areas is needed before it will be possible to fully test the assessment methodology. First, the development of state standards is required. Second, the data for initial sets of school context, input, and outcome indicators must be retrieved and compiled into a well-organized database appropriate for subsequent analysis. Development of state standards, in particular, is expected to be a difficult, time-consuming, and possibly controversial project. Limiting the initial scope of this activity to just a few indicators, however, would bring early success in standard setting.

Third, the potential problems and limitations of MLR analysis, cited above, need to be carefully investigated with actual data for at least a subset of the context, input, and outcome indicators. There is also a need to conduct adjunct studies (using other multivariate methods, e.g., canonical correlation analysis, multidimensional clustering, path analysis) to investigate and determine, if possible, the structural relationships amongst the variables being used to ensure that the currently proposed methodology does not generate gross oversimplifications. Further, there are a number of other potential technical problems that only exploratory analysis with actual data are likely to reveal. Problems involving missing data values and poor quality data, for example, can affect all types of quantitative analysis. Such problems need to be identified and thoroughly understood, and practical means for resolving and correcting them need to be developed and implemented.

The first year implementation activities involving the development of an initial set of educational indicators and work on standards setting are crucial prerequisites to the proposed analytical methodology. Also important are the exploratory studies needed to ascertain the utility of a special subset of "leading indicators," and the actual performance of particular analytic techniques.

6. Reporting.

Reports will be produced to summarize information at the school and state levels. The initial statewide report is scheduled to be released in early 1990. The bulk of that report will be based on information from the newly implemented School Status and Improvement Report (SSIR) [a revised version of the School Performance Report Card]. The SSIR is expected to serve as an interim school report prior to modification into a more comprehensive Educational Assessment and Accountability report format.

Development of prototype school and state Educational Assessment and Accountability reports will begin in the second year of implementation. The report formats are expected to be slightly different for elementary and secondary schools.

The first prototype Educational Assessment and Accountability report will be developed for elementary schools by mid-1992 (third year of implementation). Developmental work on indicators at the secondary school level is expected to take longer than at the elementary level. The secondary level prototype report is scheduled for completion by mid-1993. After subsequent field-testing with a sample of schools, the statewide release of the first elementary and secondary prototype reports is scheduled for January 1994. In contrast, state level Educational Assessment and Accountability summary reports will be published much earlier, initially using SSIR data that will be available beginning Fall 1989. The first comprehensive Educational Assessment and Accountability State Report should be available in early 1995, after both elementary and secondary school level Educational Assessment and Accountability reports have been instituted.

The contents of future state-level Educational Assessment and Accountability Report will include summaries of school performance by district and state. These summaries will report results from analysis that reflects the influence of contextual factors and resource utilization in addition to outcomes. The kinds of information presented will range from summaries of community demographics and school readiness assessments to achievement levels and outcomes beyond high school graduation. Some of the most interesting results

will involve performance assessments of public school graduates and findings from those analyses that examine relationships between input and outcome measures while controlling for context variables.

The first few developmental years notwithstanding, the purpose of the state-level report is to appraise the condition, performance and progress of Hawaii public education. Efforts will be made to identify overall trends and to assess the general impact of educational initiatives and reforms. Also, a special effort will be made to provide information in clear and easily understood formats.

A general report to the public also will be issued biennially beginning 1995. Contents of that report will include highlights of educational assessment and accountability findings and a special feature section covering topics of current interest (e.g., Hawaii opinion poll on public education, graduate follow-up, SCBM, etc.)

Implementation plans also include partial integration with existing educational assessment activities such as the Western Association of Schools and Colleges (WASC) accreditation. In the second year of implementation, educational indicators will be reviewed by the Educational Assessment and Accountability Project staff and the Advisory Panel to screen potential indicators useful for accreditation purposes. Information submitted by schools for accreditation reports, at present, consist almost entirely of input or process measures. Several context and output indicators, if developed properly, could serve as valuable supplements to existing accreditation data.

7. Informed Decisionmaking.

The basic tenet that underlies the educational assessment and accountability concept is that overall improvements in education can be greatly facilitated by providing key information in the right place at the right time. The ultimate utility of information made possible through the Educational Assessment and Accountability System is its potential for informed decisionmaking at school, district and state levels. Parents and the business community, too, should find the reports and other end-products useful.

The state-level, school-level and public accountability reports comprise the major deliverables produced by the Educational Assessment and Accountability Project. There are, however, a number of other possibilities that may benefit decisionmakers and policymakers. Two such possibilities are discussed here.

First, the information presented in the reports will, by necessity, be limited to that considered important to the general public or

decisionmakers as a whole. The Educational Assessment and Accountability database and its affiliated data sources will have the potential to provide supplemental information. Confidentiality considerations notwithstanding, follow-up information on particular relationships among indicators or on special student groups may be needed. Special requests for technical assistance or database retrieval of information may be a possibility once the basic Educational Assessment and Accountability System is in place and data quality is improved.

Second, a number of current or special issue areas will inevitably require further in-depth study than is possible with educational assessment and accountability information. It may be possible, indeed desirable, to conduct special studies on current educational topics of interest. For example, there is considerable interest in obtaining a comprehensive and accurate assessment of public school graduates' employment patterns. The Department of Education, Department of Labor and Industrial Relations, University of Hawaii and the business community, in particular, would all benefit if employment data on recent graduates were made available in a timely manner.

Another example worthy of investigation is the migration patterns of students in and out of the public school system. Present information is limited, yet there is much interest in obtaining a clearer picture of student movement among Hawaii public and private schools, and student flow into and out of Hawaii.

These additional activities are not feasible with current resources, and could require some external contracting or access to data sources beyond the Department's current capability. These are, however, possibilities for policymakers and decisionmakers that may be of considerable value in the future.

D. Organization and Administration

1. Organization.

No major reorganization will be required within the Department of Education to implement educational assessment and accountability activities. The Educational Assessment and Accountability Project staff will be incorporated within the existing Evaluation Section, under the Planning and Evaluation Branch, Office of the Superintendent. The Planning and Evaluation Branch coordinates the bulk of existing educational assessment activities including statewide achievement testing, PPB-required reports, the current School Status and Improvement Report, and program evaluation. The proximity to extant assessment data and collaboration with existing assessment

programs should greatly facilitate the accomplishment of Educational Assessment and Accountability Project goals and objectives. Figure 4 shows the organizational linkages among the Educational Assessment and Accountability Project, its Advisory Panel, and existing offices.

2. Administration.

The administration of the Educational Assessment and Accountability Project will be under the general direction of the Evaluation Section's Administrator. The current line of authority within the Office of the Superintendent will remain intact. However, the entire Department is presently being reviewed as part of an overall reorganization study. It is not certain at this time, exactly how such a reorganization will ultimately impact upon the proposed educational assessment and accountability activities. Hopefully, the reorganization efforts will foster more efficient collaboration and sharing of assessment information.

An Advisory Panel on Educational Assessment and Accountability will be established in the first year of implementation. This independent panel will consist of policymakers, educators, parents and the community-at-large. The primary role of the Panel will be to periodically review and provide feedback to guide the implementation and long-term direction of the Educational Assessment and Accountability Project. Resource individuals such as technical specialists will be recruited as ex-officio members as necessary.

E. Implementation Timeline

Figure 5 portrays the implementation schedule for major Educational Assessment and Accountability tasks anticipated for years 1990-1994. Also included, where appropriate, are retroactive 1989 timeline extensions to indicate preliminary implementation steps already accomplished.

F. Costs

The following estimates of projected costs are based on the Department of Education's 1989-91 biennium budget request document. The 1990-1994 figures assume an average increase in cost of 5% compounded annually. At present, it is extremely difficult to obtain accurate estimates of indirect costs associated with the proposed Educational Assessment and Accountability System since many of the specific activities involving personnel from Information System Services Branch, district, school, University of Hawaii, Information and Communication Services (Department of Budget and Finance), etc., are not known at this time.

Figure 4

EAA PROJECT
Organizational Chart

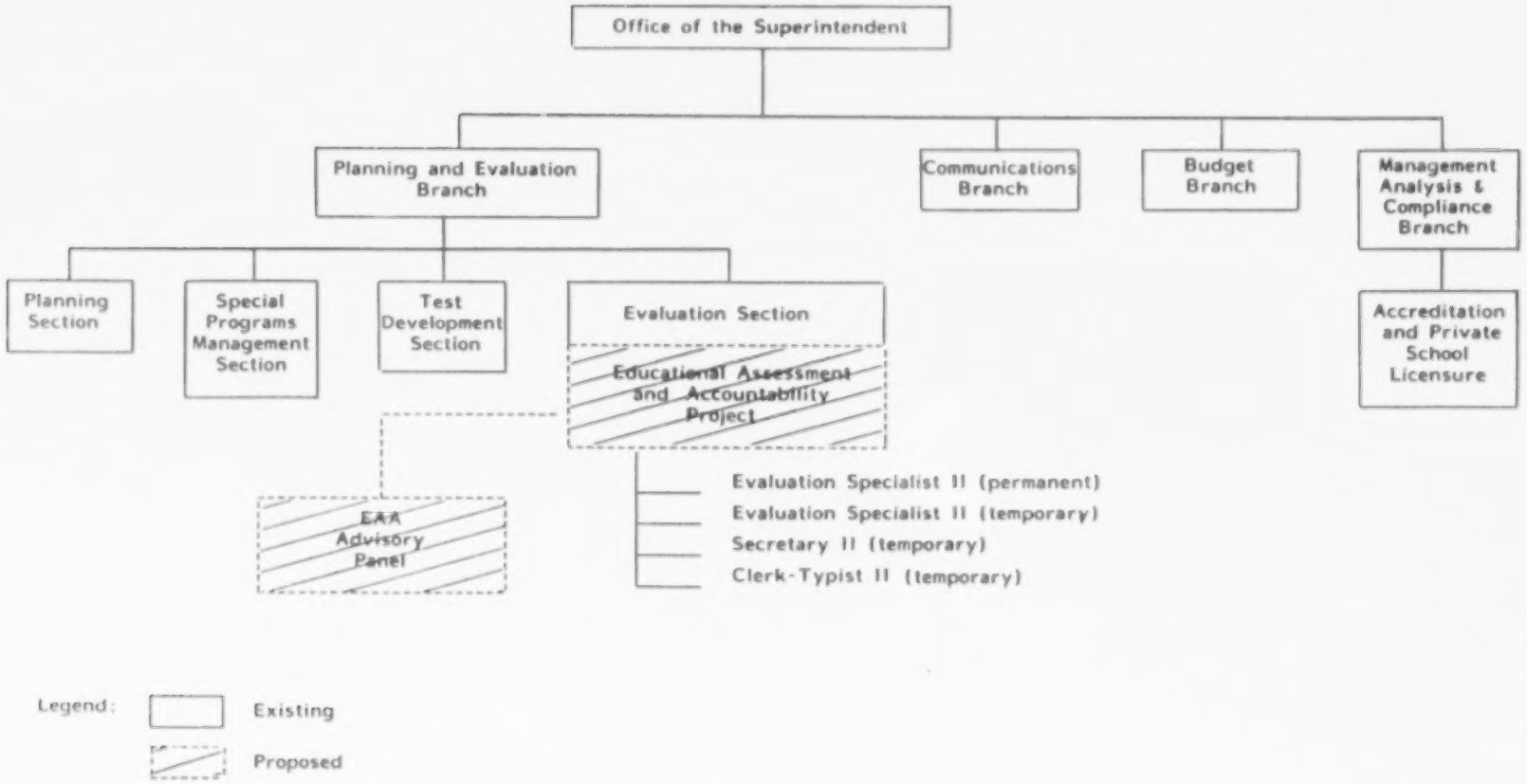
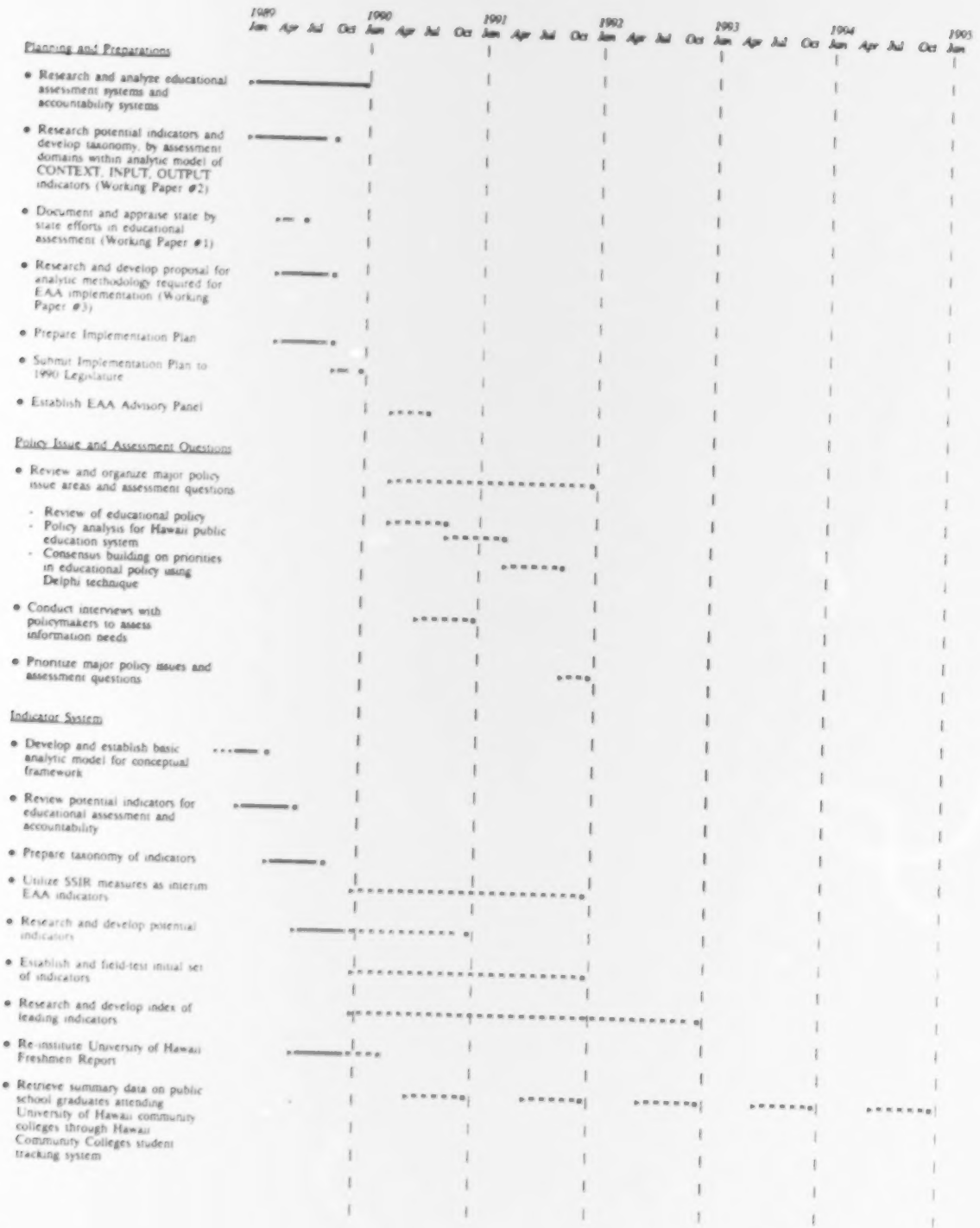


Figure 5

Educational Assessment and Accountability
Implementation Timeline
1989-1994


1989 Jan Apr Jul Oct
1990 Jan Apr Jul Oct
1991 Jan Apr Jul Oct
1992 Jan Apr Jul Oct
1993 Jan Apr Jul Oct
1994 Jan Apr Jul Oct
1995 Jan
Planning and Preparations
• Research and analyze educational assessment systems and accountability systems
• Research potential indicators and develop taxonomy, by assessment domains within analytic model of CONTEXT, INPUT, OUTPUT indicators (Working Paper #2)
• Document and appraise state by state efforts in educational assessment (Working Paper #1)
• Research and develop proposal for analytic methodology required for EAA implementation (Working Paper #3)
• Prepare Implementation Plan
• Submit Implementation Plan to 1990 Legislature
• Establish EAA Advisory Panel
Policy Issue and Assessment Questions
• Review and organize major policy issue areas and assessment questions
- Review of educational policy
- Policy analysis for Hawaii public education system
- Consensus building on priorities in educational policy using Delphi technique
• Conduct interviews with policymakers to assess information needs
• Prioritize major policy issues and assessment questions
Indicator System
• Develop and establish basic analytic model for conceptual framework
• Review potential indicators for educational assessment and accountability
• Prepare taxonomy of indicators
• Utilize SSIR measures as interim EAA indicators
• Research and develop potential indicators
• Establish and field-test initial set of indicators
• Research and develop index of leading indicators
• Re-institute University of Hawaii Freshmen Report
• Retrieve summary data on public school graduates attending University of Hawaii community colleges through Hawaii Community Colleges student tracking system

Key

————	current or accomplished activities
- - - - - - - -	planned activities
•	indicate implementation
°	end
...	continued from previous year

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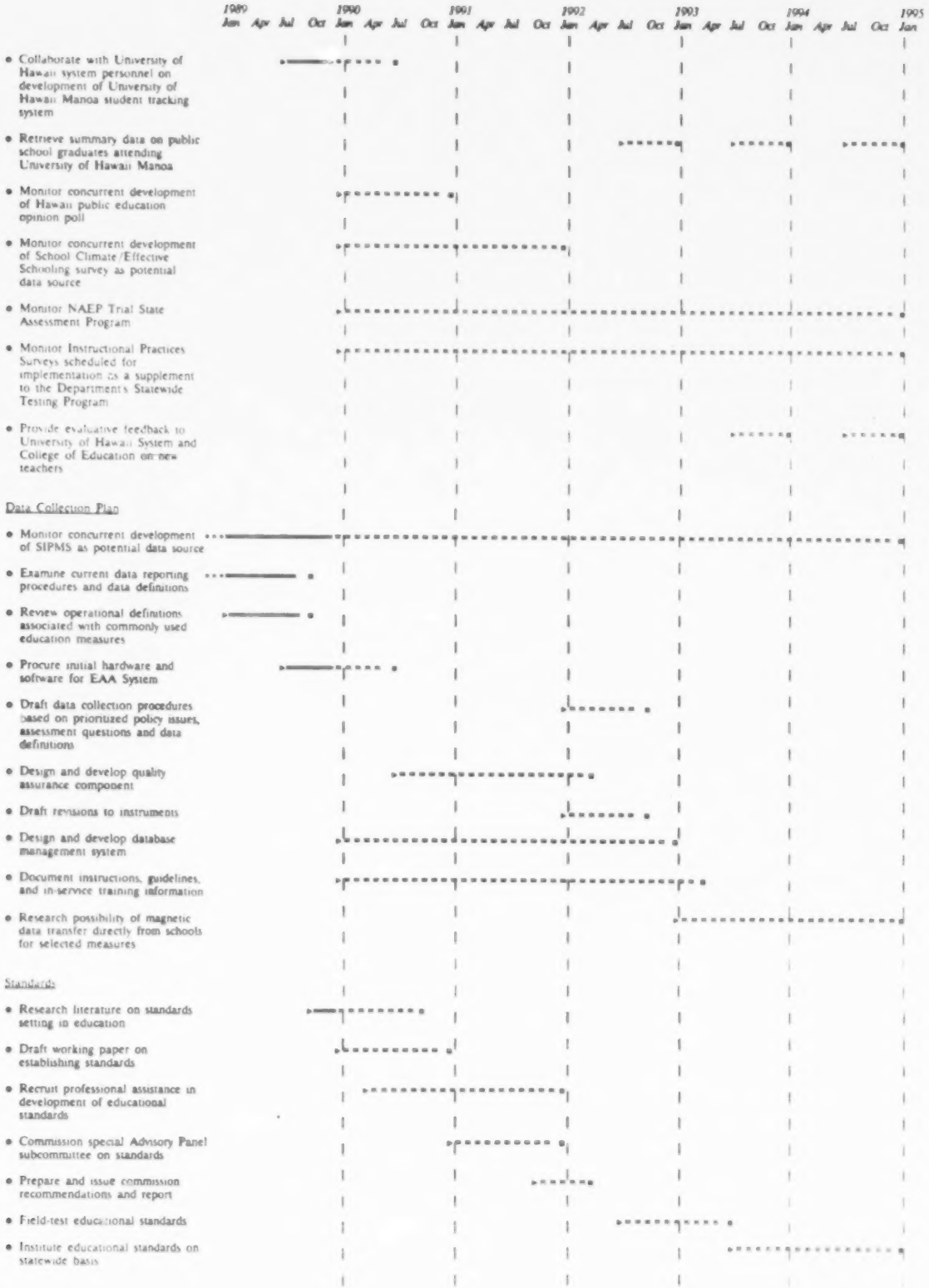
1989 Jan Apr Jul Oct
1990 Jan Apr Jul Oct
1991 Jan Apr Jul Oct
1992 Jan Apr Jul Oct
1993 Jan Apr Jul Oct
1994 Jan Apr Jul Oct
1995 Jan
• Collaborate with University of Hawaii system personnel on development of University of Hawaii Manoa student tracking system
• Retrieve summary data on public school graduates attending University of Hawaii Manoa
• Monitor concurrent development of Hawaii public education opinion poll
• Monitor concurrent development of School Climate/Effective Schooling survey as potential data source
• Monitor NAEP Trial State Assessment Program
• Monitor Instructional Practices Surveys scheduled for implementation as a supplement to the Department's Statewide Testing Program
• Provide evaluative feedback to University of Hawaii System and College of Education on new teachers
Data Collection Plan
• Monitor concurrent development of SIPMS as potential data source
• Examine current data reporting procedures and data definitions
• Review operational definitions associated with commonly used education measures
• Procure initial hardware and software for EAA System
• Draft data collection procedures based on prioritized policy issues, assessment questions and data definitions
• Design and develop quality assurance component
• Draft revisions to instruments
• Design and develop database management system
• Document instructions, guidelines, and in-service training information
• Research possibility of magnetic data transfer directly from schools for selected measures
Standards
• Research literature on standards setting in education
• Draft working paper on establishing standards
• Recruit professional assistance in development of educational standards
• Commission special Advisory Panel subcommittee on standards
• Prepare and issue commission recommendations and report
• Field-test educational standards
• Institute educational standards on statewide basis

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1989 Jan Apr Jul Oct
1990 Jan Apr Jul Oct
1991 Jan Apr Jul Oct
1992 Jan Apr Jul Oct
1993 Jan Apr Jul Oct
1994 Jan Apr Jul Oct
1995 Jan
Analysis
• Review potential analytic approaches
• Develop proposal for comprehensive, analytical methodology
1. Minimum standards
2. Performance over time
3. Actual performance versus expected performance
• Conduct exploratory studies to ascertain utility and feasibility of potential analytical techniques
• Design and develop analytical methodology to provide descriptive and analytical links among indicators
Reporting
• Prepare and issue initial statewide EAA report utilizing SSIR data
• Design and develop prototype school and state-level EAA reports
- Elementary school
- Secondary school
- State
• Field test prototype school reports with sample of schools
• Prepare and issue elementary and secondary school EAA reports
• Prepare and issue biennial statewide EAA report utilizing educational indicator system
• Assist Public Relations staff in preparing brief summary of statewide EAA indicator data for publication in local newspapers
• Prepare and issue a general report on Hawaii public education for the community-at-large
• Research potential use of EAA data for partial integration with WASC accreditation
• Field-test EAA data as supplement to WASC accreditation for one Oahu and one neighbor island secondary schools
Informed Decisionmaking
• Investigate potential for technical assistance or database retrieval services using EAA System
• Investigate possibility of conducting occasional adjunct studies on special interest topics
• Prepare recommendations on future steps for supplemental information and special adjunct studies

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Much of the detailed information involving in-kind contributions will, in effect, be determined by the priorities established for policy issues and assessment questions (Major Objective 1.4, Table 1). For similar projects of this nature, though, indirect costs have typically ranged between 3-7% (5% average) of direct costs.

The information on costs shown in Table 3 are organized into two major sections: Initial costs (Year 1990, [FY 1989-90]) and Per Annum Recurring Costs (Years 1991-1994).

G. Evaluation

An objectives-based evaluation will be conducted at the end of each implementation year to assess progress being made toward Educational Assessment and Accountability Project goals. The evaluation purview will be primarily formative in nature with a focus on improving the quality of Educational Assessment and Accountability functions. A summary of the year's Educational Assessment and Accountability accomplishments, problems, and recommendations will be highlighted in an annual report prepared by the Educational Assessment and Accountability Project staff. The yearly report could be made available to the Legislature by mid-session recess (late February).

Table 3

Educational Assessment and Accountability Project
Cost Estimates

1. Initial Costs (Year 1990, [FY 1989-90])

Personnel	
Evaluation Specialist II	34,395
Evaluation Specialist II	34,395
Secretary II	15,532
Clerk-Typist II	13,991
Student Helper	6,282
	104,595
Other Current Expenses	
Educational Supplies	250
Office Supplies	2,050
Telephone	489
Private Car Mileage	1,526
Transportation, Intra-State	2,000
Subsistence, Intra-State	1,298
Hire of Passenger Car	500
Rental of Equipment (Copier, Security Alarm)	1,700
Transportation, Out-of-State	2,000
Subsistence, Out-of-State	1,199
Subscriptions	200
Registration Fees	300
	13,512
Equipment	
Standard Office Equipment	7,548
IBM PS-2 Model 80 microcomputer, software, related peripherals	10,000
Office Furniture for PS-2 system	800
	18,348
Total Direct Costs	136,455
Total Indirect Costs (@ 5% of Direct Costs)	6,823
TOTAL INITIAL COSTS	143,278

2. Per Annum Recurring Costs (Years 1991-1994)*

Personnel	
Evaluation Specialist II	39,215
Evaluation Specialist II	39,215
Secretary II	17,707
Clerk-Typist II	15,952
Student Helper	6,282
	118,371
Other Current Expenses	
Educational Supplies	250
Office Supplies	2,050
Telephone	489
Private Car Mileage	1,526
Repair & Maintenance - Office Equipment	1,027
Transportation, Intra-State	2,000
Subsistence, Intra-State	1,298
Hire of Passenger Car	500
Rental of Equipment (Copier, Security Alarm)	600
Transportation, Out-of-State	2,000
Subsistence, Out-of-State	1,199
Subscriptions	200
Registration Fees	300
	13,439
Equipment	
Software and software license renewal	600
Total Average Per Annum Direct Costs	146,677
Total Average Per Annum Indirect Costs (@ 5% of Direct Costs)	7,334
AVERAGE PER ANNUM RECURRING COSTS	154,011
TOTAL CUMULATIVE COSTS (Years 1-5)	759,321

*Figures shown are for FY 1990-91 (Year 1). Assuming an average increase in costs of 5% compounded annually, the figures shown above should be multiplied by a factor of 1.2155 to obtain the projections for 1994.

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APPENDIX A

Examples of Current Educational Assessment Related Activities Utilized or Monitored by the Hawaii State Department of Education

Existing educational assessment related activities:

1. School profile report
2. School improvement plan
3. School climate surveys
4. School Status and Improvement Report (a.k.a. School performance report card)
5. Accreditation
6. Authorized Courses and Code Numbers (ACCN)
7. Longitudinal Student Achievement Monitoring (LSAM)
8. Computer-Assisted Instruction/Computer Managed Instruction (CAI/CMI)
9. Hawaii Poll (Honolulu Advertiser, KHON TV)
10. Graduate follow-up survey, General (40-50% return)
    Graduate follow-up survey, Vocational (10% return)
11. Freshman Follow-up at University of Hawaii
12. University of Hawaii Tracking System
13. Statewide Testing
    - Achievement (Stanford Achievement Test)
      - Reading
      - Math
      - Writing
    - Competency Based Measures
    - Hawaii State Test of Essential Competencies
    - Early Provisions for School Success Program: Missouri KIDS, Peabody Picture Vocabulary Test-Revised (PPVT-R)
    - Supplemental Testing: Stanford Achievement Test, Metropolitan Achievement Test

14. College Board Stanford Achievement Test, American College Testing, Preliminary Scholastic Aptitude Test (National Merit Scholars)

15. College Board Advance Placement exams (college credit)

16. Vocational Education

    - Pre-Industrial Preparation program (PIP) - Comprehensive Test of Basic Skills (approximately 1500)

17. Students with Limited English Proficiency - English Proficiency Test, Metropolitan Achievement Test, Stanford Achievement Test, California Achievement Test (n = 10,000)

18. Special Education - Brigance, Woodcock-Johnson, Metropolitan Achievement Test (n = 12,000)

19. Chapter 1 - Metropolitan Achievement Test, Stanford Achievement Test, California Achievement Test (8,000 of estimated 14,000 have pre-post data)

20. Kamehameha programs

    - Center for Development of Early Education (CDEE)
    - Kamehameha School studies

21. Recognition programs

    - Frito Lay
    - National

22. Routine Evaluation - 6-year cycle for direct services program

23. Time allocation study - General Education (manually done)

24. Credit-by-Exam

25. Student Achievement Report: Low Achievers, Report to Governor: lowest 3 stanines and improvement plans

26. Program Evaluation

STATE OF HAWAII
DEPARTMENT OF EDUCATION
OFFICE OF THE SUPERINTENDENT
P.O. Box 2360
Honolulu, HI 96804

SCHOOL STATUS AND IMPROVEMENT REPORT

SCHOOL 100-AINA HAINA DISTRICT HONOLULU

LEVEL (i.e. K-6, 9-12) K-06 NUMBER OF STUDENTS 596

EVALUATORS _____

SCHOOL YEAR: 1988-89

I. CONTEXT INDICATORS

A. Students

Year	1987		1988		1989	
Free/reduced lunch	/	%	/	%	/	%
Special Education	/	%	/	%	/	%
SLEP	/	%	/	%	/	%
Students enrolled Sept. through June	/	%	/	%	/	%

B. Staff

of Principals in last 5 years _____

Year	1987		1988		1989	
Total Instructional Staff						
· Regular Instruction	/	%	/	%	/	%
· Special Education	/	%	/	%	/	%
· Supplementary Instruction	/	%	/	%	/	%
Staff with 5+ years service in school	/	%	/	%	/	%

C. Facilities

1. Number of classrooms available: _____ Number of classrooms short/over: _____

Library (% of Ed. Specs)_____ Cafetorium (% of Ed. Specs)_____ Admin. Building (% of Ed. Specs)_____

2. Repairs & Maintenance (work orders) _____ _____
   # Requests # Fulfilled

3. Current Facilities Assessment Development Schedule (FADS) available?

   Yes _____ No_____ In Progress _____

D. Brief Description of the School

II. SCHOOL IMPROVEMENT PROCESS

A. Major Improvement Efforts (as listed in School Improvement Plans):

B. Special Programs/Innovative Projects:

C. Commendations by District Superintendent:

D. Recommendations by District Superintendent:

III. OUTCOMES

A. Student Achievement:

Required
Stanford Achievement Test (SAT) Highest Grade Tested_____

	1987		1988		1989	
Total Math	/	%	/	%	/	%
Below Average (Stanines 1-3)	/	%	/	%	/	%
Average (Stanines 4-6)	/	%	/	%	/	%
Above Average (Stanines 7-9)						
Total Reading	/	%	/	%	/	%
Below Average (Stanines 1-3)	/	%	/	%	/	%
Average (Stanines 4-6)	/	%	/	%	/	%
Above Average (Stanines 7-9)						
Hawaii State Test of Essential Competencies (HSTEC) (#/% of Seniors Passing)	/	%	/	%	/	%

Optional (e.g. Presidential Fitness, Academic Fitness, #/% of Student Body in the 4th Quarter with 2.0+ GPA)

1987		1988		1989	
/	%	/	%	/	%
/	%	/	%	/	%
/	%	/	%	/	%

B. Behavioral Data (Chapter 19 Student Misconduct and Discipline)

A Offenses

Year	1987		1988		1989	
Number of suspensions Number of students	/	%	/	%	/	%

B Offenses

Year	1987		1988		1989	
Number of suspensions Number of students	/	%	/	%	/	%

C. Average Daily Attendance:

Year	1987	1988	1989
	%	%	%

D. Completion rate: Seniors on count date compared with Seniors who earn diplomas/certificates that year.

	1987		1988		1989	
Seniors on count date: Seniors earning diplomas/certificates:	/	%	/	%	/	%

E. External Reviews (if any; e.g., WASC, NWREL, Chap. One and other monitored programs). Awards and Recognitions.